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& HOME IMPROVEMENT

26 YEARS AS CANADA'S MOST TRUSTED WOODWORKER RESOURCE • ISSUE #153 FALL 2025

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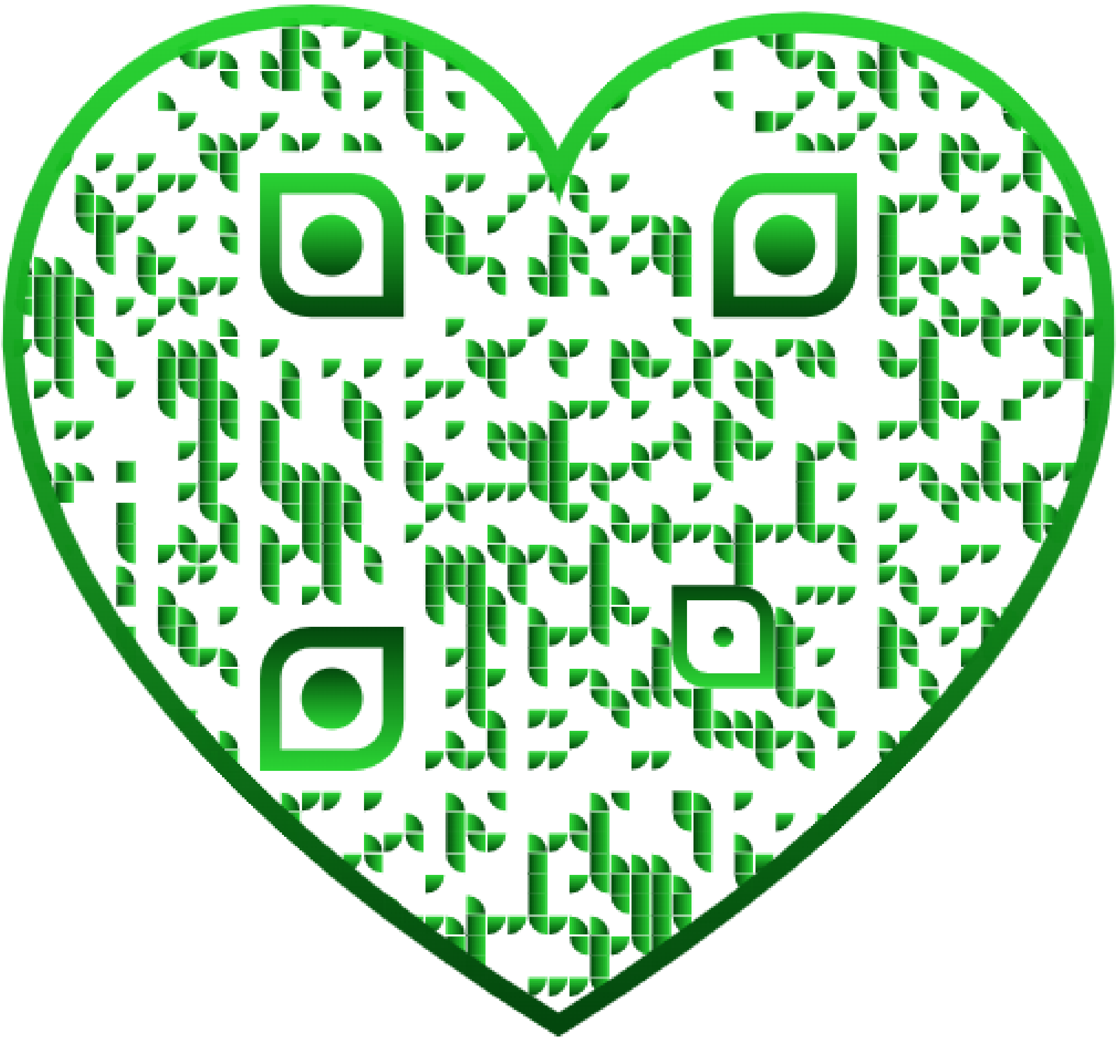

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editor's letter

rbrown@canadianwoodworking.com

This is one packed issue, but before I dive into the details, I wanted to let you know we have a lot going on, in addition to this great issue you have in your hands. We just started our second year of woodworking webinars. From furniture refinishing and carving to small shop setup and power carving, we've got you covered. There will even be a webinar about how to make some great Christmas gifts. These webinars are free to members, so go to our website to see what topics we've got coming up. Not only are they entertaining, they're informative. You can also ask questions during the presentation and even re-watch them later.

Over the past few months we've also undergone a large change behind the scenes. Our fulfillment system, which processes all of the orders and ensures issues get mailed to our members, has changed. It's been a very labour-intensive process, but we're very pleased the update is now in the rear-view mirror, and our members and staff are now reaping the benefits.

Our website has also recently undergone a major overhaul. With over 25 years' worth of articles, videos, slideshows and tool reviews, it's got something for everyone. And if you have a question about woodworking or home improvement, you can always ask one of us or post your question in our forum, which is very active and informative, with members from coast to coast to coast.

Speaking of something for everyone, let's get back to our current issue. It's a mix of holiday gift projects, woodworking skill-builders and some great home improvement topics. With the giving season just around the corner, it's the perfect time for woodworkers across the country to shine. We've got a unique woven trivet project that will impress anyone you give it to. There's also a photo string frame, a great project to give to a teenager. Coincidentally, it's also a great project for a teenager to make. If you've never heard of the whimsical world of automata, you'll get a kick out of how you can bring some movement into a fun woodworking project. Another project is a lily pad-shaped pill box, complete with rotating lid. One of the simpler projects in this issue is a picture frame or art stand, which does a great job at displaying all sorts of art work. Last, but not least, our cover story details how you can build a three-legged side table with a carved top. It would make a great gift for that special someone on your holiday gift-giving list.

I always enjoy making gifts for friends and family at this time of year. I'm sure many of you do, too. As my 15-year-old daughter explained to me, woodworking is like a secret weapon when it comes time for gift giving. Everyone loves a handmade gift. — *Rob Brown*

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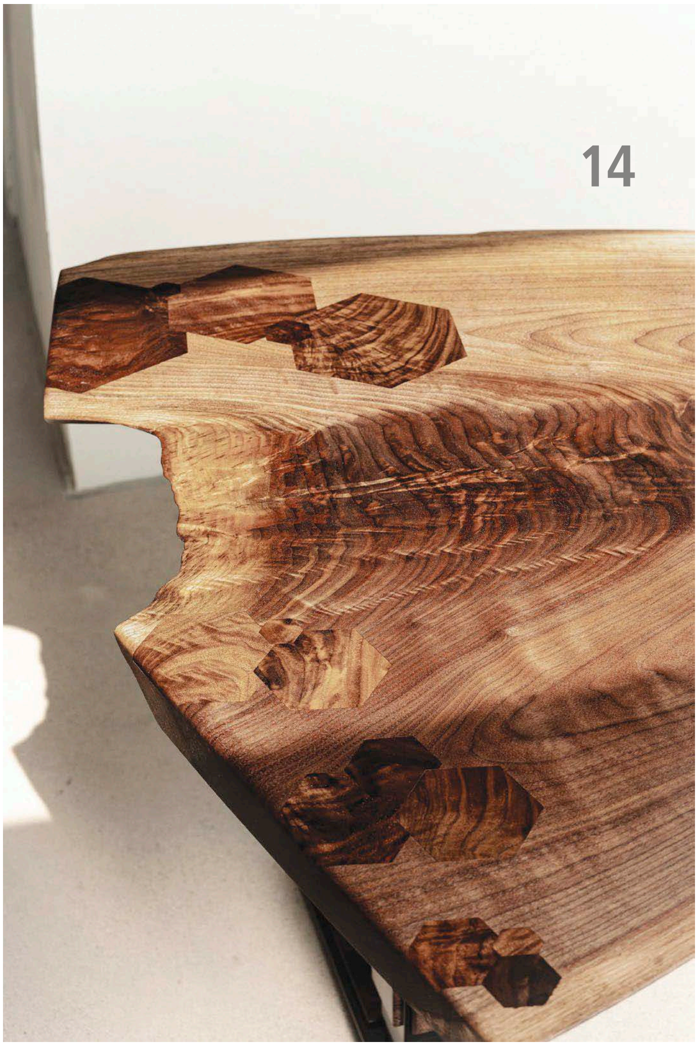

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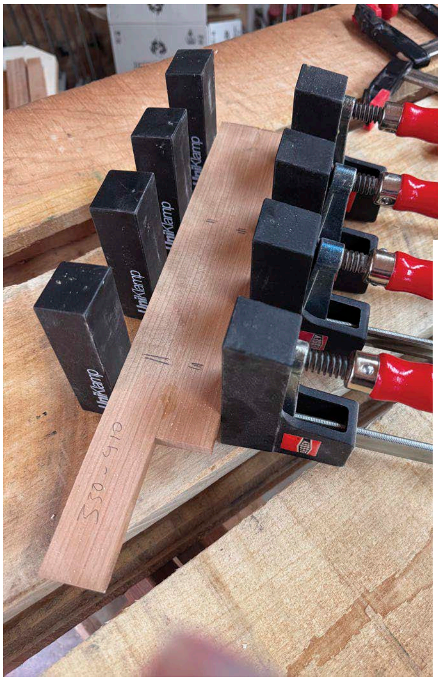

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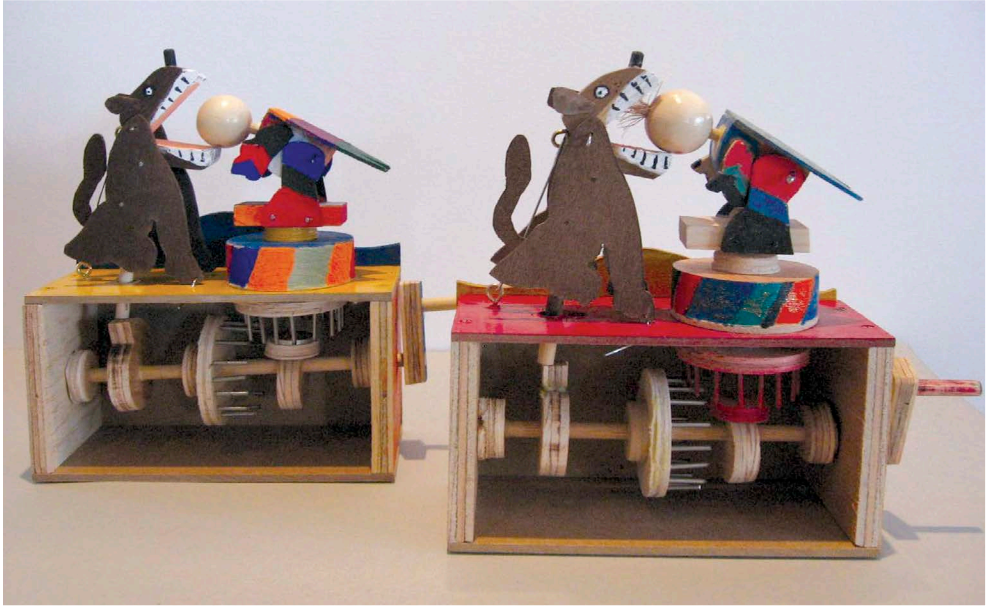

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letters

Questions about shellac

I'm about to finish a project with shellac, but I've never used it before. What should I sand to before I start applying shellac? Could just off the planer work? Or would that be too slick? Do I need to account for the splotchy characteristics of cherry and maple with shellac? If so, can you think of any processes that would work?

Many thanks, Rob.
Howard R.
Via email

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Hi Howard,

First of all, I'd strongly suggest making a sample panel with the species you made your table with and apply a finish to that panel as if it were the table. This will not only allow you to learn how to best apply the finish, but will also give you a good idea of what the project will look like when you're done.

Just like everything in life, every finish has its pros and cons. Shellac is forgiving to apply and can easily be reapplied if any touch-ups are needed down the road. It's also very good at slowing moisture transfer. The main downside, at least in my mind, is that shellac isn't as durable as most finishes. It won't stand up to standing water overly well and it will scratch somewhat easily.

I would not suggest applying shellac to a surface that wasn't sanded or carefully smoothed with a sharp hand plane. The shellac will likely adhere to the surface just fine, but the surface won't look or feel as smooth as it otherwise should. What grit to stop at is partially personal preference and depends on the project. You could stop at 150 grit, though some will sand as high as 320 or 400. I very rarely sand bare wood that high, though. If you're not quite sure, stop at 180 on your sample finishing panel and see how that works for you. You could also prepare two panels, one to 150 and one to 320 and see what the difference is for yourself.

Some woods, like cherry, maple and pine, are prone to splotching. This is due to varying densities in any single piece of wood. Stain will accentuate the differences, but shellac generally has less colour in it than stain, so the variation will be less. That's not to say shellac will cause the surface to be perfectly even, as the variation in these woods is still naturally there.

Make sure to read the article in our Feb/Mar 2023 issue titled "Shellac: The No-Fuss Finish." Also check out the video we created on how to use shellac, which is in our Videos section on our website.

— Rob Brown, Editor

Large mirror frame advice

My wife acquired a mirror 20" × 60" × 3/16" thick. She's asked me to make a frame for it so it could stand vertically, leaning against a wall. I agreed, but the more I thought about it, the more involved the project became in my mind. My initial thought was using 2-3/4" × 3/4" pine stock (because I have some) and rabbeting the rear edges to fit the mirror into the frame. I was considering using a biscuit jointer to join the long sides to the short cross pieces. I'm wondering if my plan provides sufficient strength to hold the mirror frame together. Perhaps I'll need to add a thin, full board type backing to the frame (like on some cabinets) to keep the mirror in place.

I'd sure appreciate any advice from you.

Thank you,
Ralph

Hi Ralph,

The pine you have should do the trick, as long as it's sound and has no large knots that will weaken any portion of the length.

I think your worries about a biscuit joint for this large frame are warranted. A biscuit joint is likely not strong enough, unless you treat this completed frame very carefully over the years. The small amount of glue surface area, coupled with the almost non-existent mechanical strength of the joint, combine to make a weak joint. The sides of a small decorative box could be strengthened with biscuits, but a large mirror will need a stronger frame to keep it secured long-term.

I'd recommend a half-lap joint, as it's strong and isn't difficult to machine. Essentially, removing half the thickness of each overlapping piece, where they both meet, will give you a half-lap joint. I'd likely use a table saw to machine it, but a router table would also work well. Even hand tools could work nicely, if that's the sort of approach you enjoy. A half-lap joint has a large amount of gluing surface area, which will make for a strong joint. It has little in the way of mechanical strength, but the large gluing surface area easily makes up for that.

You can view a video I made about how to create a lap joint on our website in the Videos section. It's a part of the "Basics of Woodworking Videos: 11 Essential Woodworking Joints" series we have available.

The rabbet along the back, inside edge, to secure the mirror is a good approach. I often use "Flush Retaining Clips" (Lee Valley #00S0700) to hold mirrors and pictures in place in their frames. They come in varying depths. Although I usually drill a 1/2" diameter hole to recess the clips in the rear of the mirror frame, you could leave them proud of the surface if you wanted. Since you will likely use 3/4" pine, you will only have a small amount of depth to work with, but you still should have enough to recess these clips about 1/8" or so. Just make sure the screws you use to fix the clips in place don't protrude through the face of the frame. You can add as many clips as needed to provide a strong union between the mirror and the frame.

The link below is to an article of a similar mirror frame I made about a year ago. I used half-lap joints, though they were a bit fancier, with their ends protruding past the other mating pieces. You can see how I fixed the mirror pane to the frame in this project. https://canadianwoodworking.com/project/build-a-mirror-frame/

Good luck and let me know how it goes.

— Rob Brown, Editor

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Tool Reviews

ZenSharp sharpening system

The ZenSharp system is a solid, budget-friendly sharpening system for anyone who wants to get a sharp edge quickly and consistently, with minimal mess or skill.

TrigJig AF6 MKII angle finder

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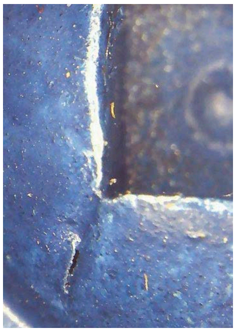
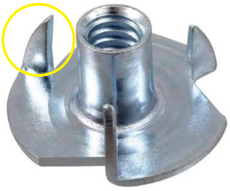


Micro Mystery

Can you guess this object commonly found in most shops?

Follow us on Instagram to see regular "Micro Mystery" challenges.

We will post the answer to this one in our spring issue.



Previous issue:
The wing on a T-nut

Keep in Touch on Instagram

Here's a mix of informative and entertaining social media influencers to check out.

Melanie Hamilton
Instagram: @woodenlegstudio
Calgary-based maker specializing in clean, modern furniture

John Leinemann
Instagram: @brokenbowstudio
Artistic wood turning with refined lines and intriguing texture

Nicole MacDonald
Instagram: @elocin.handmade
Whimsical, colourful, one-of-a-kind wooden art

Elynyd Benjamin
Instagram: @elynyd
A mix of turned, sculpted and geometric pieces

Events

Wonders of Wood – Niagara
Woodcarvers Association's 42nd show and competition
Niagara-on-the-Lake Community Centre,
Niagara-on-the-Lake, ON
November 9 to 10, 2025
NiagaraWoodcarvers.com

Hamilton Woodworking Show
Caledonia, Ontario
November 14 to 16, 2025
WoodShows.com/Hamilton

Fabulous Finds

Kreg Rebel 20V Ionic Drive Pocket-Hole Joiner

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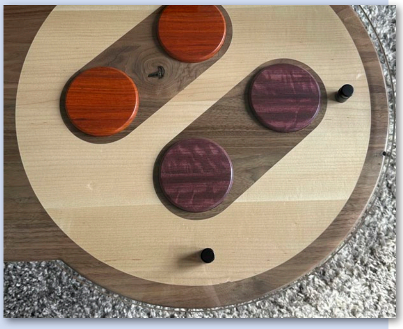
Video Links

canadianwoodworking.com/**videos**

Canadian Quotes:
Harley Griffin



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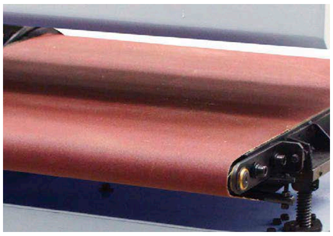
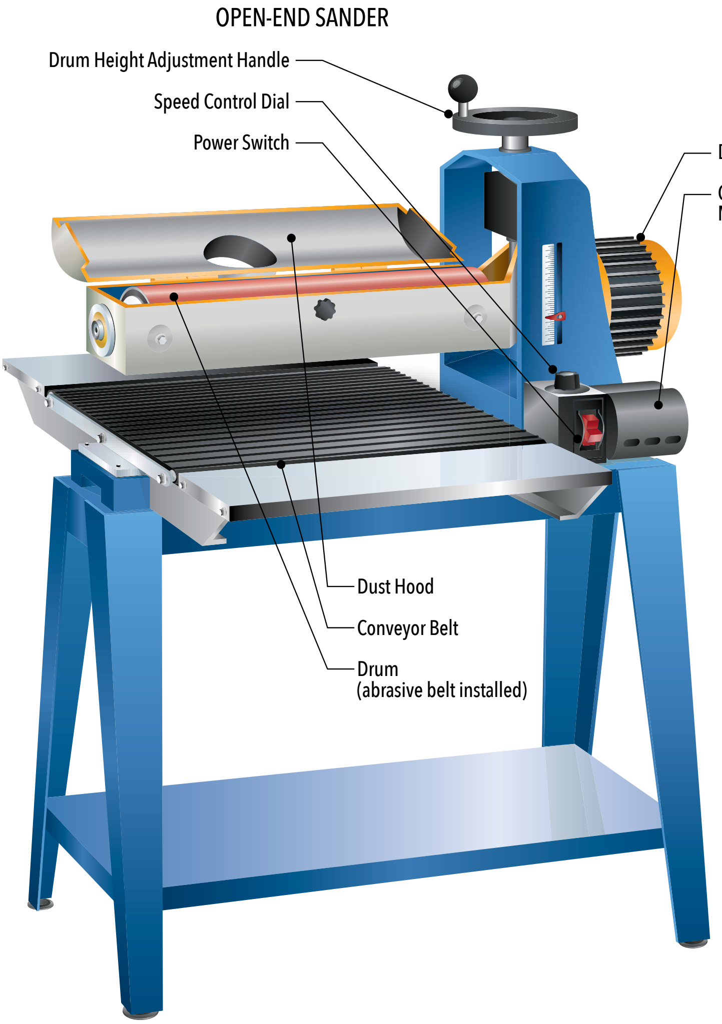
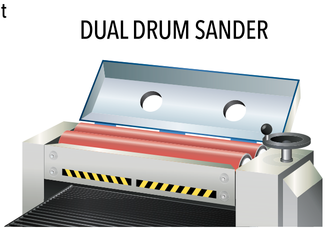
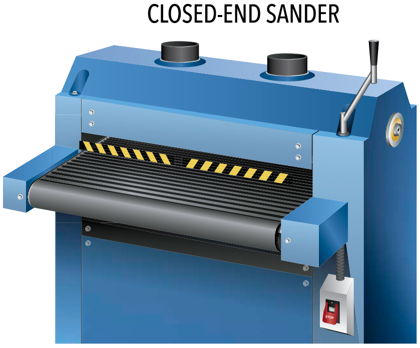
Drum Sanders









There are three basic types of drum sanders: closed-end, open-end and dual drum sanders. **Closed-end** drum sanders have a rigid frame that supports the drum on both sides. The maximum width capacity ranges from 12" to 50". They offer excellent stability and are a popular choice for professional woodworkers.

Open-end drum sanders, supported on only one side, allow you to sand pieces wider than the drum by flipping them and making a second pass. This flexibility makes them suitable for wider tabletops or large cabinet panels. The open design can flex slightly under load, so even pressure and careful alignment are essential to achieve consistent results. These sanders are very popular with both hobbyist woodworkers and professionals.

Dual drum sanders feature two sanding drums arranged in sequence, typically with progressively finer grits (such as 80 and 120). This setup removes material and smooths the surface in a single pass, improving efficiency and finish quality. These machines are larger, more expensive, and best suited for advanced users, professional woodworkers or small production shops that process high volumes of work.

Choosing the right type of drum sander depends on your typical project size, workspace and budget. Each type offers distinct benefits, from compact reliability to professional-level productivity.

Power: 2 – 5 HP
Feed speed: 2 – 15 FPM
Thickness capacity: 3" – 12"
Width capacity: 12" – 37"+

Get the Most Out of Your **Drum Sander**

Take light passes

Drum sanders are designed to refine surfaces, not remove lots of material. Trying to take off too much in a single pass can cause burning, overload the motor and wear out your abrasives faster. Stick to light, consistent passes to maintain surface quality and prolong the life of your machine.

Use the right grit sequence

Start with a coarser grit (e.g., 80) to flatten or level a surface, then work your way up in increments (e.g., 120, then 180) for smoother results.

Keep abrasives clean

Use an abrasive cleaning stick or compressed air to clean the drum regularly, especially during long sanding sessions. Replace worn paper as soon as it loses its bite.

Support long workpieces

Use infeed and outfeed support — roller stands or tables — to keep large panels level as they move through the machine. This helps reduce uneven sanding or snipe at the ends.

Monitor heat and feed rate

Reduce feed rate if the sander struggles or increase it slightly if you see burning. Let the machine and the abrasive do the work at a steady pace.

Photos by Manufacturers Illustration by Len Churchill

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Top 10 Most Enjoyable Aspects of Woodworking

There are a lot of highlights when building custom furniture, but these are my favourites. Some aren't a surprise when they happen, while others pop up when you're least expecting them.

BY ROB BROWN

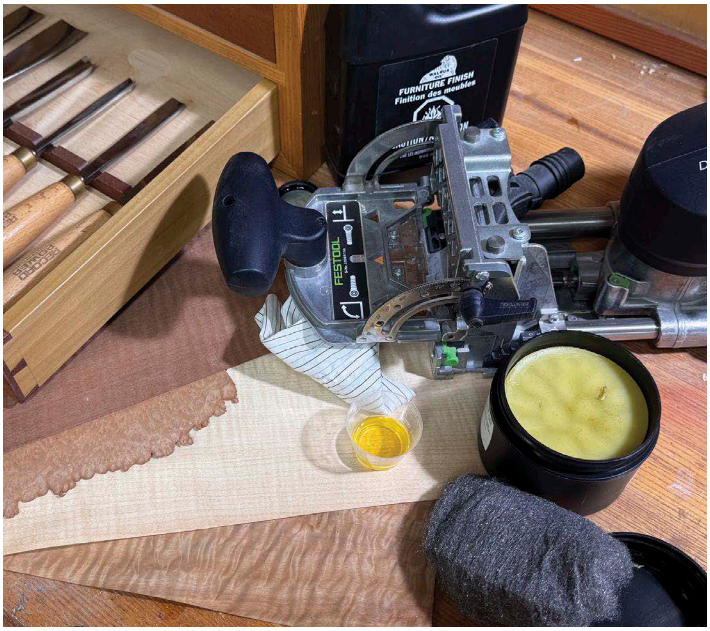
1 Nailing a Sketch – I almost exclusively wrestle with the design portion of a piece of furniture. The first 95% of the design process is agony, between 96% and 99% it's quite enjoyable, and the last 1% is amazing. Persevere, no matter how frustrating it gets.

2 Finding a Wooden Gem – The lumberyard usually has what I need, but it rarely has anything truly surprising. That said, once in a while I come across something stunning and the design I spoke about above needs to be modified to suit the piece I've found. This happens to me with both solid wood and especially veneer.

3 Breakout – Surprises certainly don't happen each and every time I run a board across the jointer, but when they do it's very enjoyable. Whether it's curl in a piece of cherry, a bit of bird's-eye in some maple or the incredibly straight grain of quarter cut zebrawood, there may be a surprise around any corner.

4 Sharp Carving Gouges – As many of you know, I like to add texture to an otherwise smooth surface. Not only is the process of designing the pattern fun, but carving it into the surface with a razor-sharp carving gouge is even better. But best of all is how it will feel afterwards, when you run your hand over the freshly textured surface.

5 Releasing the Vacuum – Not everyone has a vacuum bag, though they definitely should. Vacuum pressing is one of the most enjoyable techniques in furniture making. Having the ability to press veneer onto a flat or curved panel, or to press up layers of solid wood into bent laminations, expands what you're capable of making and allows you to more easily create impressive pieces of furniture.



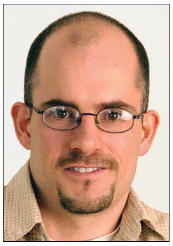
6 Reaching for My Festool Domino – Although they aren't cheap, a Domino allows me to create strong, durable mortise and tenon joinery at record speed. Woodworking isn't always a race, but when building is your profession, speed sure helps. It may be hard to justify the cost as a hobby woodworker, but if you can somehow squirrel away a few dollars here and there, you won't be disappointed in the long run.

7 Seeing a Fixed Mistake – I've been working wood for over three decades, but I still make my fair share of mistakes. I sometimes feel I make more than my fair share, but that's another story altogether. Re-making parts is painful and frustrating, so when I'm able to somehow make a mistake look like it never happened, it's impossible not to smile, breath a sigh of relief and never mention it to anyone.

8 The First Coat of Finish – We've all had the same experience. The piece has been nicely sanded, a finish has been selected and the first coat goes on. Even with high expectations, I'm often surprised by how great wood can look with a fresh coat of wet finish.

9 Standing Back and Admiring – Once the hardware has been installed, the doors have been hung with care and the surfaces buffed with wax and #0000 steel wool, it's finally time. Stand back and take in your latest masterpiece, as it really doesn't get any better than this. And if there is a tiny mistake or imperfection, not to worry; we're hardest on our own work and nobody else will even notice it.

10 Telling Others – We're Canadian after all, so there's no need to get too boastful, but the look on someone's face when you tell them you made that beautiful piece of furniture in your home is quite enjoyable. So many people think furniture and woodwork can only be bought at stores, so it's nice to be able to surprise them.



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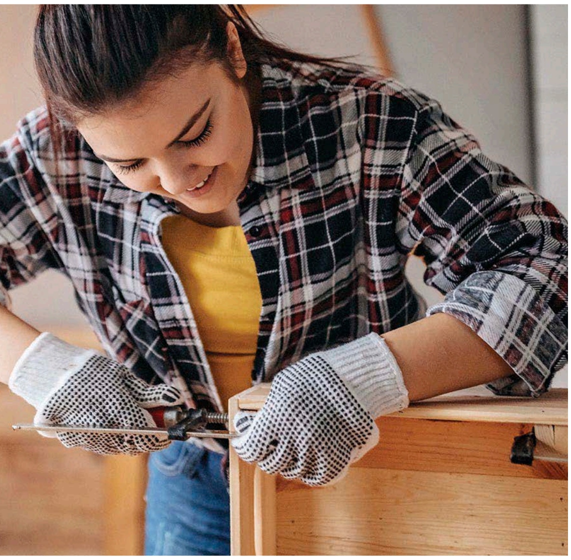

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What's the Difference?

Woodworking tools, terms and techniques can sometimes be confusing. Here, we help you make sense of the finer points of woodworking so you can make the right decision for your situation.

BY CARL DUGUAY

Sapwood and heartwood

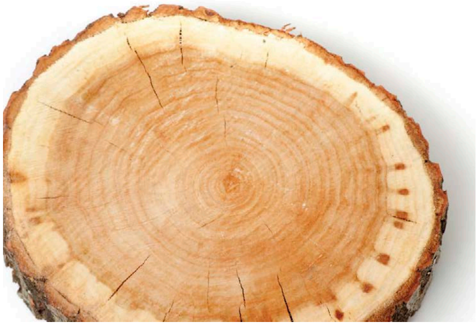
Sapwood and hardwood are two distinct types of wood found within a tree, and understanding the difference between them is important for selecting, working with and finishing wood.

Sapwood is the younger, outermost part of a tree, located just beneath the bark. It plays an essential role in the life of the tree by transporting water and nutrients from the roots to the leaves. Sapwood is typically lighter in colour and contains more moisture when freshly cut.

In contrast, **heartwood** is the older, inner core of a tree. As the tree ages, the inner sapwood cells die off and transform into heartwood, which no longer conducts water. This section becomes infused with natural resins, oils and extractives, giving it a darker colour and often a denser structure.

The thickness of both the heartwood and softwood rings varies from species to species, with some trees having more sapwood than heartwood, and vice versa.

The difference between sapwood and heartwood matters for several reasons. Visually, the contrast between them can be significant. In species such as walnut, cherry and mahogany, the heartwood is often much darker and richer in tone than the pale sapwood. This can affect the aesthetic of a finished piece. Many woodworkers prefer to highlight heartwood in visible areas of furniture and cabinetry for its uniform colour and pleasing grain, while sapwood may be used in secondary or hidden parts or selectively included as a design element. Though some woods, like maple and white ash, are sought after for their light-coloured sapwood.



Tree Cross Section – Sapwood is always lighter and towards the outer bark of a tree, while heartwood is always darker and is in the centre of the tree. The percentage of sapwood versus heartwood in a tree varies greatly by species.

Durability is another consideration. Heartwood, being more resistant to moisture and pests, is better suited for outdoor furniture or pieces that will be exposed to changes in humidity. Sapwood, by comparison, is more permeable and less rot-resistant, which can limit its usefulness in demanding environments unless properly sealed or treated.

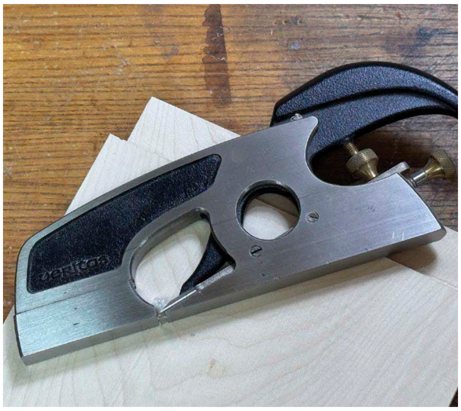
There are also subtle differences in how the two respond to machining and finishing. Sapwood's higher initial moisture content means it may move more as it dries, increasing the chances of warping or checking. Additionally, when it comes to applying stains or finishes, sapwood and heartwood can absorb products at different rates, sometimes leading to blotchy or uneven colouring. Woodworkers often test finishes in advance or use dyes and sealers to achieve a more consistent appearance across both types of wood.

Shoulder and rabbet planes

At first glance, shoulder and rabbet planes look quite similar — both have blades that extend the full width of the tool's body, allowing them to cut right into corners. However, there are important differences in design and purpose that set them apart.

A **shoulder plane** is designed for trimming and fine-tuning joinery, especially tenon shoulders and cheeks. It has a narrow body with a low-angle blade bedded at around 15° to 20°, making it ideal for end-grain work. The blade is slightly wider than the body and set flush to the sides, so it can clean right into corners without leaving material behind. Because of its narrow profile and precise construction, the shoulder plane excels at detail work. It's not designed to hog off large amounts of material, but rather to refine joints, making sure shoulders are crisp and square or that tenons fit snugly.

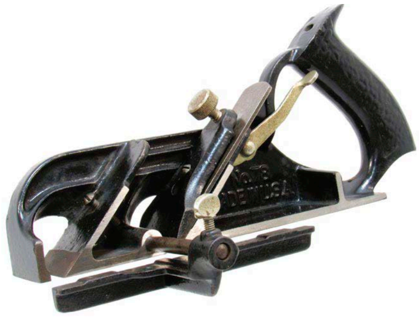
The **rabbet plane** (also called a rebate plane) is a more robust tool meant for removing more material. A traditional-style rabbet plane has a wider body and often comes with a removable side fence and depth stop, which help when cutting rabbets (shoulders and grooves along the edge of boards). Many rabbet planes also feature a nicker or scoring cutter in front of the main blade to cleanly sever wood fibres across the grain. While it can be used to trim joints,



Shoulder Plane – A more refined, lighter plane than the rabbet plane, the shoulder plane excels at removing small amounts of material in order to fine tune a joint like a rabbet or tenon.

a rabbet plane is better suited for cutting or adjusting rabbets, dadoes or even working on door and window casings. It's less refined than a shoulder plane but far more efficient for bulk removal.

Use a shoulder plane when precision matters: trimming tenon shoulders, cleaning up housing joints or refining small rabbets. It's your go-to for detail joinery work. Use a rabbet plane when you need to remove more material, create or deepen a rabbet, or work across the grain with minimal tear-out. It's ideal for joinery preparation rather than fine-tuning. They're so useful that many woodworkers keep both on hand.



Rabbet Plane – With a more robust construction than a shoulder plane, a rabbet plane is generally the tool of choice for removing material to create a rabbet joint. It often has a fence to limit the width of the rabbet the user wants.

Bottom feed and gravity feed spray guns

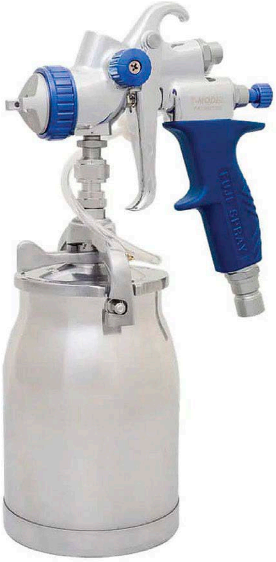
Spray guns are essential tools for applying smooth, even coats of finish, whether you're working with lacquer, paint, shellac or other materials. Two common types are bottom feed (also known as siphon feed) and gravity feed spray guns. While they both serve the same general purpose, they differ in design, performance and ideal applications.

A **bottom feed** spray gun has a cup mounted beneath the spray gun body. When the gun is triggered, air passing through the gun creates a vacuum that draws the finish up from the cup and into the spray nozzle. Because this system relies on suction, bottom feed guns typically require more air pressure to operate effectively. They're particularly well-suited for spraying large quantities of finish, since the cup can be larger and doesn't affect the balance of the gun as much. Bottom feed guns are also commonly used in automotive and industrial settings, where a high volume of material needs to be applied quickly.

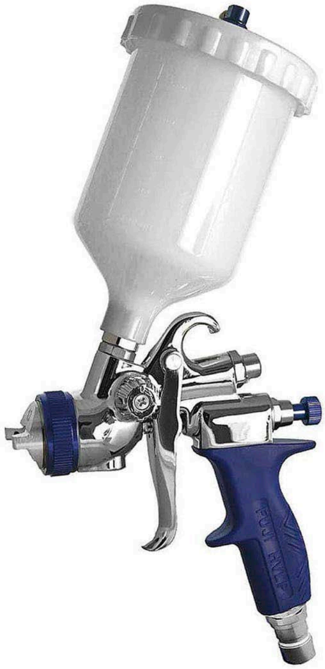
In contrast, a **gravity feed** spray gun has the cup mounted on top of the gun, allowing the finish to flow down into the nozzle by gravity. This setup requires less air pressure, resulting in better transfer efficiency and reduced overspray. Gravity feed guns are often preferred for fine finishing tasks — found in woodworking, cabinetmaking or automotive touch-ups — where control and material conservation are priorities. Because the finish is fed into the gun more easily, gravity feed models can also handle thicker materials more effectively, without requiring thinning.

Choosing between the two depends largely on the task at hand. A bottom feed spray gun is ideal when you're working on large-scale projects that require extended spraying time without frequent refilling, such as painting fences, walls or large furniture pieces. The larger cup capacity and balanced handling make it a workhorse for high-volume jobs.

On the other hand, a gravity feed spray gun excels in precision work and is better for smaller-scale or detail-oriented jobs where finish quality is critical. It's easier to clean, uses less finish overall and produces less overspray — making it a popular choice for woodworkers, especially in smaller shops or when working with expensive or limited-quantity finishes.



Bottom Feed – A bottom feed spray gun can hold more material than a gravity feed gun, making it more appropriate for larger-scale jobs. Because the material needs to be suctioned out of the cup, more air pressure is needed.



Gravity Feed – A bit lighter and more maneuverable than a bottom feed gun, a gravity feed gun can be used at lower pressure than a bottom feed gun. These types of spray guns are commonly used in fine furniture making situations.

CARL DUGUAY
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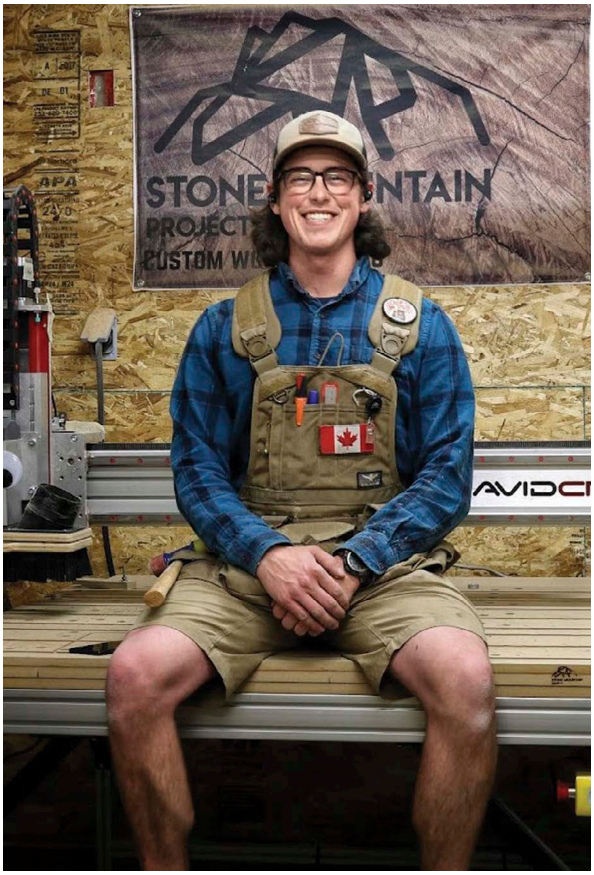
Harley Griffin

…on solid wood, failing and building with LEGO

BY ROB BROWN



How long have you been building furniture?

I have been building/making since I was 8, starting with LEGO and slowly moving into solid wood. I took my hobby from part-time to full-time in August of 2020, mid-pandemic.

What sort of furniture do you specialize in?

The main part of my business comes from building custom game tables and dining tables, but I have a hard time niching down and staying with one thing. I enjoy learning and trying out new techniques or styles when I have the chance, or when a client gives me some free rein on a project.

In order, what are the three most important items in your shop apron?

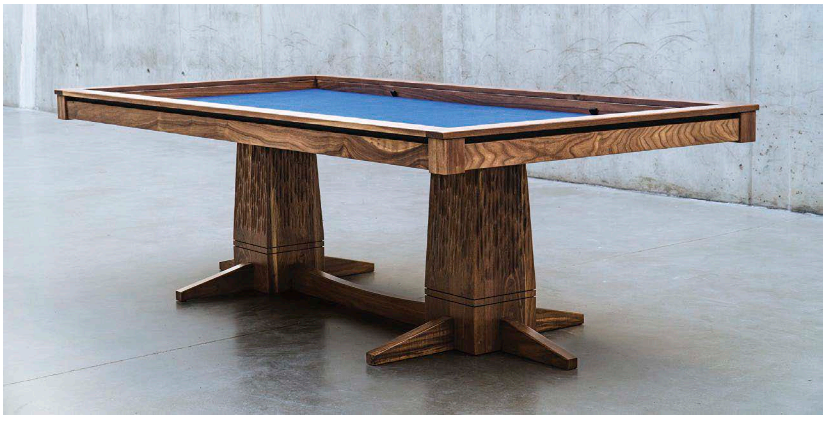
Currently, it would be my tape measure, marking knife and 4" machinist square. Those are the three things I reach for the most and have actually made a dedicated magnetic tool caddy that fits in my side pocket so they are always within reach and accessible.

Do you prefer hand tools or power tools?

I am what most people call a hybrid woodworker. I enjoy using a well-tuned hand plane or sharp chisel when the time is needed since they excel at the fine details that a power tool would take too long to set up or be too coarse. On the other hand, using my table saw or CNC to mill or cut out parts is much more efficient than using a variety of hand tools.

Solid wood or veneer?

I've always been drawn to solid wood. It's a natural and enduring material that has character and holds a story in its grain and knots. I love working with solid stock because it has a different feeling and weight to it that manufactured or veneered goods don't have. A large part of my work is building custom dining tables and game tables. I treat these more than just furniture pieces; they're gathering places. This is where family and friends will gather and share years of memories, meals and milestones. My intention is to create something that becomes part of their rhythm of life, that holds on to the scratches, dents and stories. I strive to create a piece that is solid in every sense of the word, not just well built, but dependable, meaningful and crafted to endure.



Game Table with Textured Base – This game table built for a client who wanted something completely customized and unique has a textured base that was both the hardest and most enjoyable part of the build, Griffin says. The texture was added to the pedestals with a CNC router, while the tapered workpieces were held in place with a shop-made jig.

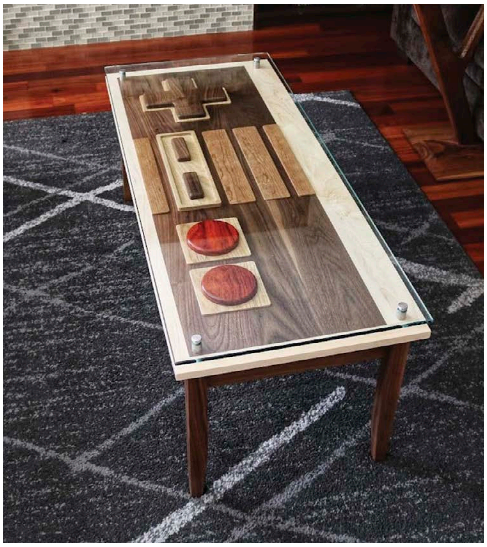
Photos by Dusty Media (Lead Photo by Harley Griffin)

Harley Griffin, 29, Stone Mountain Projects

stonemountainprojects.com

Location and size of studio — Currently in Ottawa with a shop about 25'×50' but my partner and I are moving back to Calgary soon so I don't know what size shop I'll be moving into.

Education — I have my journeyman Redseal in carpentry that I got straight out of high school. I am mostly self-taught in the woodworking side of things, but got my degree from the university of YouTube. Throughout it all there have been a bunch of fails but those have been the best teachers, usually giving the test before the lesson, but all of them have made me into the maker I am today.



NES Coffee Table – One of the most asked about pieces in his portfolio is this coffee table. Griffin loves telling people all the colours are from natural wood. He eventually built a NES desk for the same client, who is a game developer.

quotes

I listen to a wide variety of music, podcasts and audio books while I'm working. I don't have a particular style or genre of music I listen to, but mostly look for a good beat to be able to bop to and keep the energy high during the day. If I'm in a flow state I usually have my headphones on but no music playing so I can stay focused on the task at hand. If I have a particularly long sanding session ahead of me on a table or large project I will sometimes throw on a show to help pass the time.

* * *

Don't be afraid to fail, because you will do it frequently. The more you fail, the quicker you will learn and ultimately succeed.

* * *

I work incredibly close with my clients, since I am the designer, builder, customer relations and the shipping guy, and probably 10 others in between. I work with them from the initial inception of the idea all the way up to it landing in its final resting spot. I want them to have an experience working with me, getting them involved with the planning and keeping them involved through the build process so that when they finally receive their piece there is no doubt that they are going to absolutely love it.

Almost all of my big business has come in through word of mouth.

* * *

We have to raise awareness about woodworking and show everyone that it can be a viable career path. We have a large population leaving the workforce and not as many replacing them. There's a large pool of knowledge that isn't being handed down to the next generation and if we don't get more people interested in pursuing this career, that knowledge will stop with them. We need to give kids the options and knowledge to try it while they are in school. This gives them the chance to learn about woodworking and see if they like it so as they transition out of school they have options they can pursue.

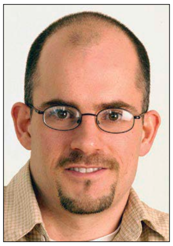
* * *

I can't say I have had only one big influence throughout my career so far. I have had many different people at different times give me inspiration or help to influence my work. As a maker who's continually trying new things, I come in contact with a variety of other makers when I'm exploring new ideas or techniques, and through the process of trying parts or pieces of a technique or process, they naturally start to find their way into the pieces I'm designing and building.

I got into "woodworking" from playing with the LEGO my dad gave me. I used to build spaceships, forts and pretty much anything my imagination could come up with. Also, my grandpa would give me a bucket of rusty bent nails, a hammer, a pile of scrap wood and an afternoon in the backyard to just build. Mostly nailing pieces of wood together to make swords and shields, but I did manage to build a small "shed". And by shed I mean four 2×4's with random bits of OSB nailed to the tops and sides. I love making things with my hands and gain immense joy building something from virtually nothing.

* * *

Woodworking is now in my DNA. When I think of myself, and who I am as a person, woodworking is always one of the first things that comes up. I express myself through my work and the things I create. I enjoy building and crafting for the people I care about most in my life and it's one of the ways I express my love to them. Woodworking has moved past the point of being just a hobby and has become an important extension of me.



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VIDEOS: To see a slideshow of Griffin's work, visit our website
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Expand Your Living Space with a BACKYARD PATIO

Photos by Rob Brown Lead photo by iStock

Build yourself a spot that's perfect for relaxing, entertaining or just soaking up the sun.

BY CARL DUGUAY

A well-designed patio can do more than improve your home's functionality and appeal. It can expand your usable living space, connect you to the outdoors and create an ideal spot for relaxing, entertaining or enjoying family meals al fresco. Whether you're starting from scratch or updating an existing outdoor area, here's what you need to know to get started.

Let's clarify terms

Although patios, verandas, porches and pergolas are all designed to enhance outdoor living, they differ in structure and function. A **patio** is typically a ground-level surface made of concrete, stone, tile or pavers. It can be either attached to the house or freestanding, and while it's generally open to the sky, some patios feature partial shading through umbrellas, pergolas or awnings.

A **veranda,** by contrast, is a roofed platform that usually runs along the front or sides of a house. It's raised above ground level and often features railings and posts. Verandas are common in older or traditional-style homes and provide a sheltered spot to sit and relax while enjoying the view. Very similar to a veranda, a **porch** is a smaller sheltered area on a building, typically in front of an entrance.

A **pergola** is an open-sided structure with a slatted or latticed roof that's often built over a patio or walkway. While it doesn't provide full protection from the elements, a pergola creates filtered shade and a defined outdoor space. Pergolas can also be used to support climbing plants, adding natural beauty and texture to the landscape.

Here, there… or anywhere?

Choosing the right location is one of the most important steps in planning a patio. Ideally, your patio should complement how you intend to use the space. If you envision dining outdoors or entertaining guests, placing the patio close to your kitchen or main living area makes it easier to carry food, dishes and furniture in and out.

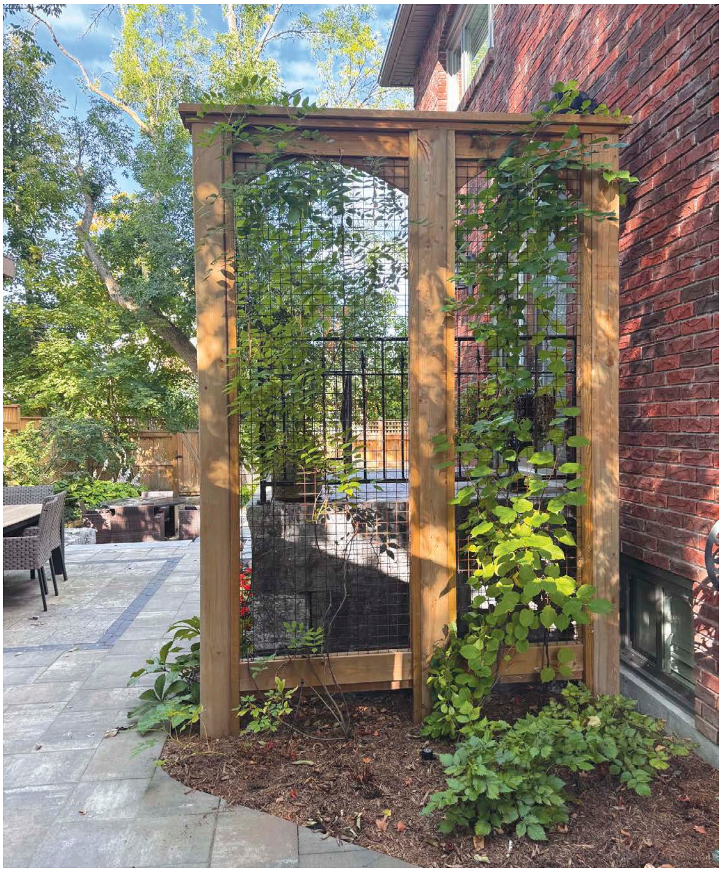
It's also important to think about how sunlight and shade move through your yard during the day. A sunny patio may be perfect for morning coffee but less pleasant on hot summer afternoons, unless you plan for shade.

Privacy is another consideration. Placing your patio in a secluded area or incorporating fencing, plantings or screens can help create a more intimate and comfortable atmosphere. Additionally, you'll want to avoid low-lying areas where water tends to collect and instead choose a site with good drainage and some protection from the wind.

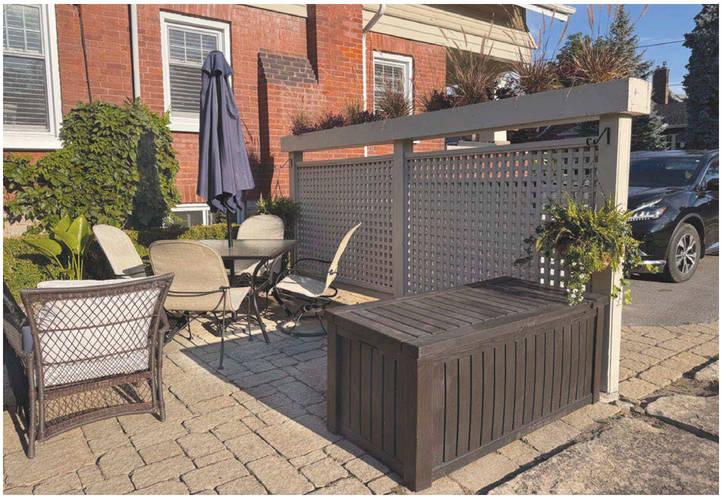
One size doesn't fit all

When determining the size of your patio, consider how you plan to use it and what kind of furniture you'll be placing on it. A patio intended for dining should comfortably accommodate a table and chairs, with space to move around them — typically 100 to 150 square feet for a four- to six-person setup. If your goal is to create a lounge or relaxation area with outdoor sofas, chairs and a coffee table, you may need closer to 150 to 200 square feet.

For patios serving multiple purposes, such as dining, lounging and grilling, plan on at least 300 square feet. It's usually better to err on the side of slightly larger rather than smaller. A cramped patio can feel uncomfortable and may end up being underused, whereas a generously sized one allows for flexible furniture arrangements and future additions.

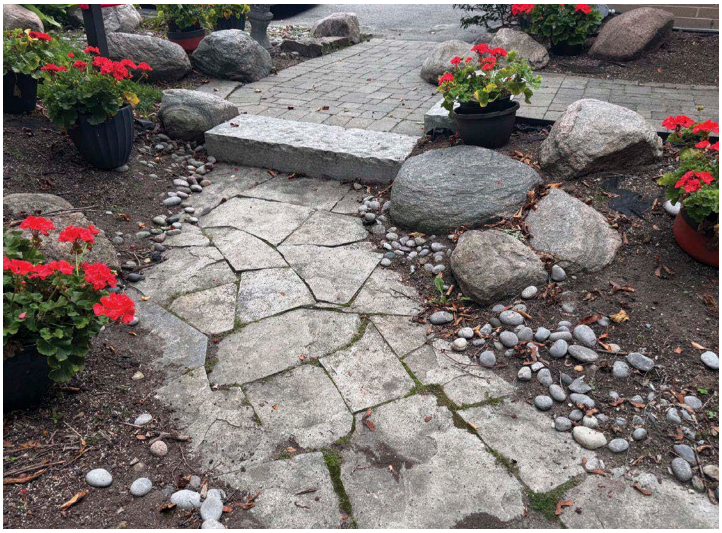


Privacy Screen – While many privacy screens are on the perimeter of a patio, sometimes it's helpful to have a screen separating the patio from the home. In this case, a privacy screen shields the view of the back door and provides a trellis for flowers and vines to grow on.

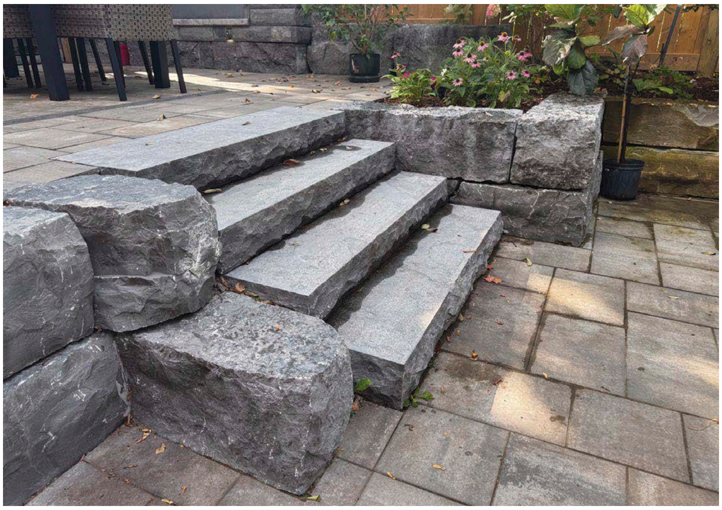


Close Quarters – This privacy screen delineates the area between the driveway and the backyard, bringing comfortable separation to the smaller seating area.

Small Is Nice – This small seating area allows the users to sit in front of their home, which is on a quiet street, and chat with pedestrians passing by. The stone work on the ground does a great job at defining the space.



Natural Stone – Natural stone has an organic look that's less structured, which looks great in many areas. It can be used on an entire patio or just for a portion of one, like this curved pathway.



Think Long-Term – Materials like stone and concrete are lasting, maintenance-free elements of a patio, though they are typically much more labour intensive to install than wood.

It's all down to what's underfoot

The materials you choose for your patio will affect not only its appearance but also its durability, maintenance needs, cost and climate.

If freezing and thawing cycles are common in your area, porous materials are likely to absorb water, which then expands as it freezes, leading to cracking, flaking or spalling over time. Concrete should be properly air-entrained and sealed to withstand these stresses. Dense natural stones such as granite or slate are more resistant, while softer stones like limestone or sandstone may deteriorate faster. Brick should be rated for exterior use in severe weather conditions. Choosing durable, low-porosity materials and applying protective sealants helps ensure a patio remains strong and attractive year-round.

Concrete is one of the most popular choices due to its affordability and versatility. It can be poured in slabs or stamped to mimic the look of stone or tile. While working with concrete is arduous, it's definitely within the scope of most DIYers.

Natural stone, such as slate, flagstone or bluestone, offers a beautiful and organic look that blends well with gardens and landscapes. While it's more expensive and more difficult and time consuming to install, it's durable and long-lasting. Brick is another classic choice that brings character and timeless charm, particularly in traditional or heritage homes. For all but the most experienced homeowner, installing a natural stone patio is best done by a contractor.

Concrete or stone **pavers** offer a middle ground. They come in a wide variety of shapes, colours and patterns, and are relatively easy to install and repair. For a more casual or rustic feel, a gravel patio is another option. They're affordable and fast to build, though they do require regular raking and maintenance to stay tidy.

Wood and composite materials can also be used for patios, though they're more commonly associated with decks. They're a viable choice when you're building a floating deck — a deck unattached to your house and slightly elevated above ground level. They're especially well-suited to sloping backyards.

Wood offers a warm, natural appearance and is relatively easy for DIYers to work with. It can be stained or painted to suit a wide range of styles, but it does require ongoing maintenance, including sealing and repairs, to protect it from rot, insects and weathering.

Composite decking, on the other hand, is a low-maintenance alternative that resists rot, mould and pests. It mimics the look of wood and comes in a variety of colours and textures. However, it tends to be more expensive upfront and can become hot underfoot in full sun.

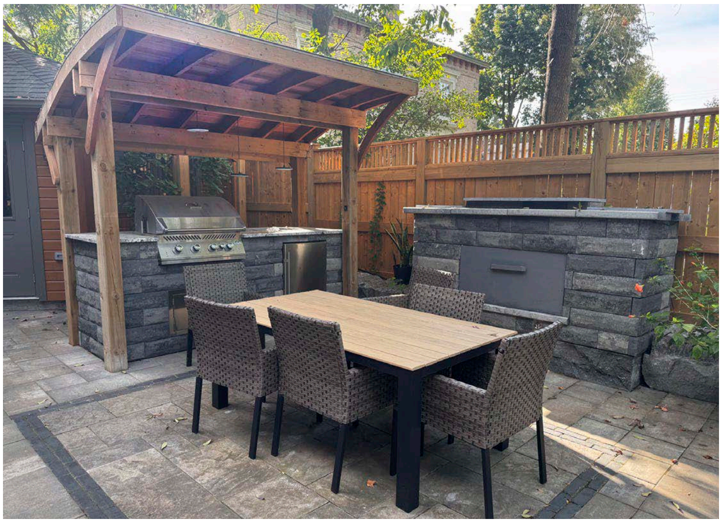
Permit, please

Before you break ground, it's important to check with your local municipality to see if a permit is required for your project. This is particularly true if the patio is attached to your home, alters the grading or drainage of your yard, or involves electrical or gas connections. Even freestanding patios can be subject to setback requirements or utility line restrictions. Securing the proper permits will ensure your project meets safety standards and avoids costly fines or delays.

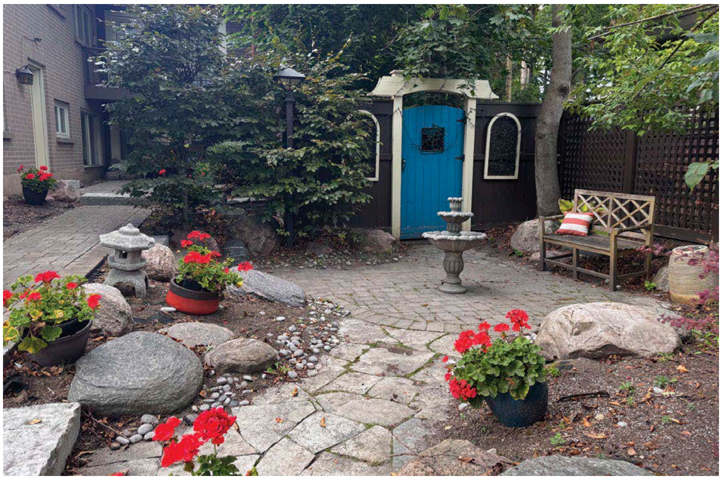
Hold the H^2O

One of the most common mistakes in patio construction is poor drainage. Your patio should slope away from your home at a rate

Easy Approach – Wood is easy to work with and provides charm and character that's unmatched. It does require regular upkeep, though, and will eventually rot.



Getting Serious – Having a spot for a dining table is great. It's also possible to incorporate a BBQ, pizza oven or other cooking devices into a patio. This will provide the ultimate backyard entertaining experience.



Divide and Conquer – The patio in this side yard has been divided into two separate spaces. A fence, complete with door, works to define the two areas, as well as provides a beautiful focal point in the space.

Planter Boxes – It's easy to build custom-sized planter boxes for any space. They can be used strictly as accents, or be sized and located to help define different areas of the space, as well as pathways within the patio.

of approximately 1/4" per foot to prevent water from pooling around the foundation. Use a string line and level during layout to maintain a consistent slope. You may also want to install a gravel base or French drain in especially wet areas to divert water more effectively.

Gearing up

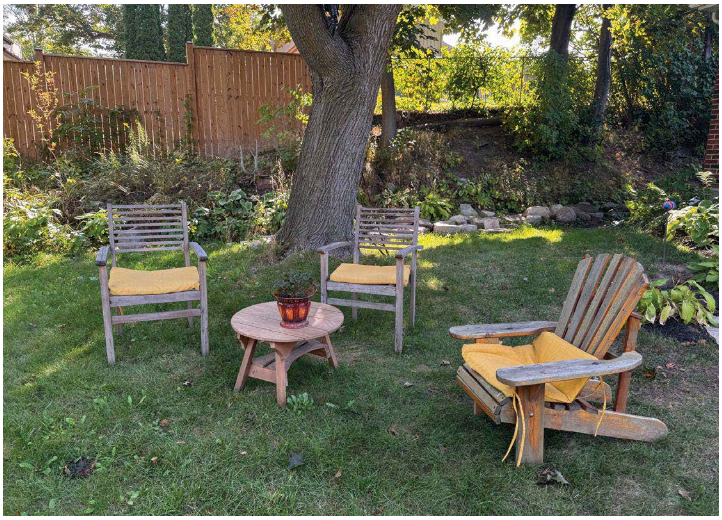
Essential items that you'll need to install any kind of patio include a shovel, wheelbarrow, rake, level, tamper or plate compactor, string line, a rubber mallet, and a strong back. For paver patios, you might also need a masonry saw or angle grinder with a diamond blade to make clean cuts. You can rent larger equipment like a compactor if you don't own one. Having the right tools on hand before you start the job will make construction smoother and more efficient.

What to expect

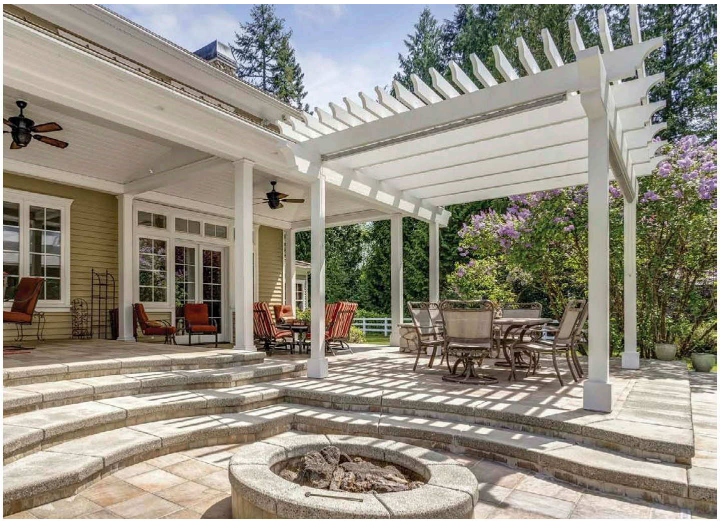
Constructing a basic patio is a project that many homeowners can tackle themselves with some planning, tools and elbow grease. The first step is to plan the layout and mark out the area with stakes and string. Once the shape and size are finalized, excavate the site to a depth that allows for the base and surface material — usually between 6" and 8" deep.

Next, lay down a base of compacted gravel or crushed stone to ensure proper drainage and a stable foundation. You can install edging materials to help keep the patio surface in place and maintain clean lines. Then it's time to install the surface material — concrete, stone, brick or pavers — in the desired pattern, making sure it's carefully levelled. If you're using pavers, sweep polymeric sand into the joints to lock the pieces together and prevent weed growth. The finished patio can then be sealed to enhance durability and appearance.

It doesn't have to end there. Personalize your patio with outdoor furniture, ambient lighting and strategically placed containers of plants. Add a hot tub, barbeque, portable firepit or fountain. Too much overhead sun? Install an umbrella, awning or pergola.



Keep It Simple – Not all patios need to be complex. A bit of shade and some grass is a good place to start. Adding a table and a few chairs will provide a simple spot to sit, relax and chat.



Add a Pergola – A pergola is a great way to get a small amount of shade, provide a place for plants and vines to grow and further help define the space. These simple structures are also within most DIYers' skill level.
(Photo by Ala2017bn | Dreamstime.com)

Consider Lighting – A patio is often used in the evening. Adding lighting, even just to help illuminate walkways, is a great idea.

Simple Details – This twig trellis is easy to make and can be customized to your needs.

Need a helping hand?

Deciding whether to build the patio yourself or hire a contractor depends on several factors, including the complexity of the design, your budget and your experience with outdoor projects. A simple gravel or paver patio is a realistic DIY project for many homeowners and can be completed over a weekend or two with proper preparation.

However, if your patio will be large, located on a slope, or constructed from high-end materials like natural stone, hiring a professional can save time and ensure that grading, drainage and foundation work are done properly. A skilled contractor can also help you navigate building codes and permits and may offer design advice that adds lasting value to your home.

Tidy up

To keep your patio looking great year after year, regular maintenance is key. Sweep away leaves and debris to prevent staining and moss growth. Wash the surface periodically with a mild soap and water solution or use a pressure washer if the material allows. Reapply sealers every two to three years to protect concrete and natural stone surfaces. For paver patios, refill joints with polymeric sand as needed to prevent weed growth and shifting.

No space is too small

If your yard is small or your budget is tight, consider starting with a smaller patio and expanding later. Choose cost-effective materials like gravel or concrete pavers and use creative design solutions to add charm, such as built-in planters or benches. Adding a pergola, string lights or a portable fire pit can transform even a modest space into a cozy, welcoming retreat.

A patio can be a valuable addition to any home, offering a versatile space for outdoor living that can be tailored to your style and needs. Whether you build it yourself or enlist the help of a contractor, investing in a patio is a step toward creating a more enjoyable, functional and beautiful living environment that you and your family can appreciate for years to come.

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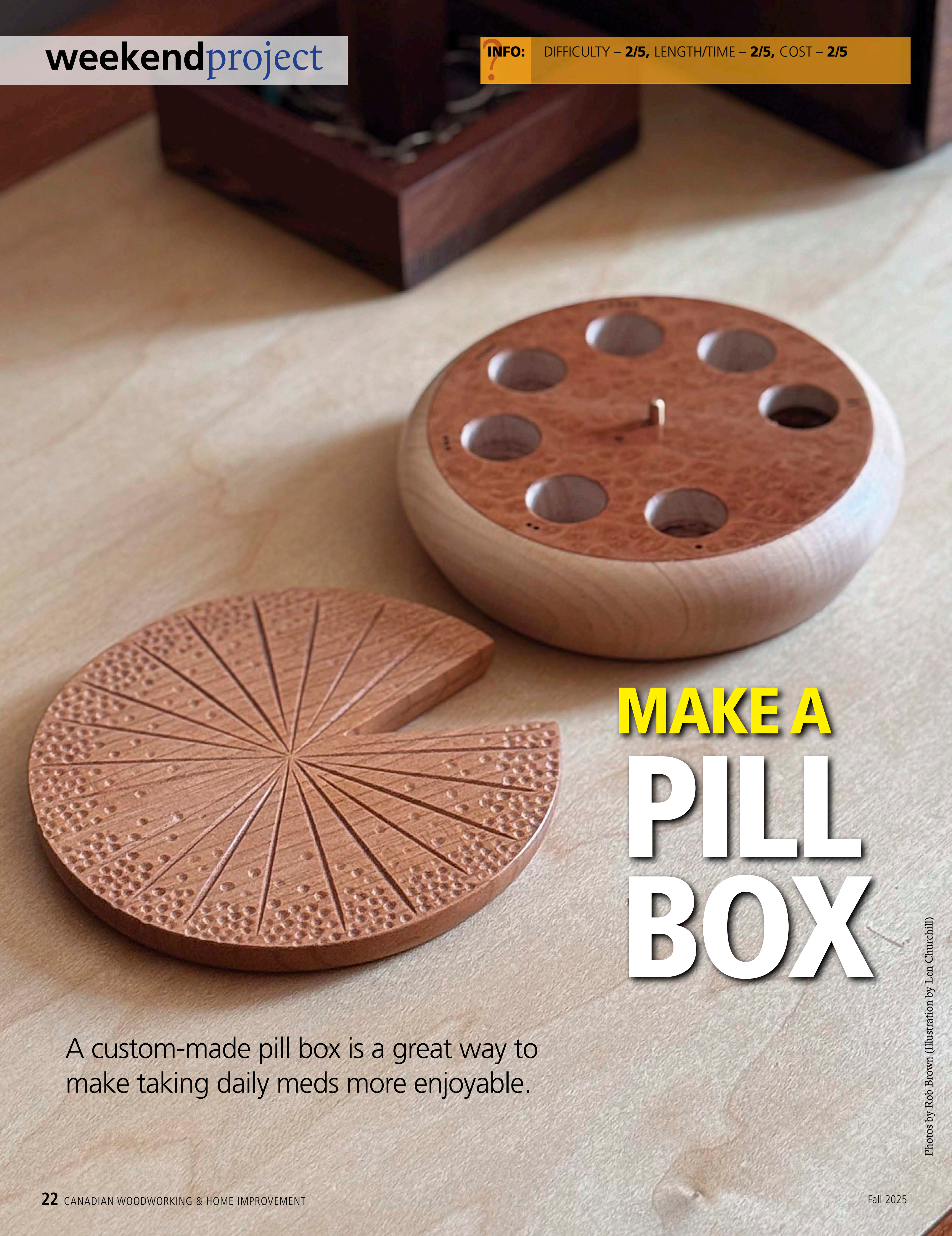


MAKE A PILL BOX

A custom-made pill box is a great way to make taking daily meds more enjoyable.

Photos by Rob Brown (Illustration by Len Churchill)

BY ROB BROWN

A friend of mine who now has to take one pill daily is afraid they're going to forget to take it now and then. I offered to make them a pill box that would allow them to put all their weekly pills in it at the start of the week, allowing them to easily tell whether they missed a day or not by looking at the box. And since they're more likely to take their daily pill if they enjoy part of the process, I wanted to make the box pleasing to the eye and enjoyable to handle.

The ground rules

Everyone has different requirements for a project like this. At first, I was going to rout round-bottomed cavities so the user could more easily reach in with one finger and grasp the single pill in each cavity, but routing often leads to scorching the wood. Instead, I opted for a box that can be picked up with one hand and flipped over to allow one pill to spill out for each day.

Because each cavity will hold only one pill, they don't need to be large. A slightly larger box overall, coupled with a larger cavity for each day, will allow more pills to be added, if that's necessary. A larger box might be a bit more difficult to manipulate each day, so keep that in mind, too. If you did need to make the box much larger, you might consider routing round-bottomed cavities in a larger box, rather than needing to pick up and turn the box over each day.

The lid on my box rotates on a brass pin in the base. This allows the user to rotate the slot in the lily pad lid to the correct cavity. It also allows the user to remove the lid and fill up the box at the end of each week. The pills inside will only be visible when the lid is removed; a clear lid would be needed if you want to be able to clearly see if you missed any days.

Because this lid is easy to remove, this box won't travel well if it's loaded with pills. The lid would likely come off, spilling the contents. An elastic band might work in a pinch, but if the person using this box travels regularly, a better solution is needed. A latch of some sorts, to hold the lid on, might work.

The prototype

I started by making a very simple prototype. This allowed me to work out some of the design challenges. Unless you want to make some changes to this box, you can likely skip this step, as I've worked most of them out already. Having said that, making a prototype only took me about 20 minutes, so it might still be worth it for you.

The finished diameter of the base is 4-1/8". The base is 1" thick. The top is 4" diameter and 3/8" thick.

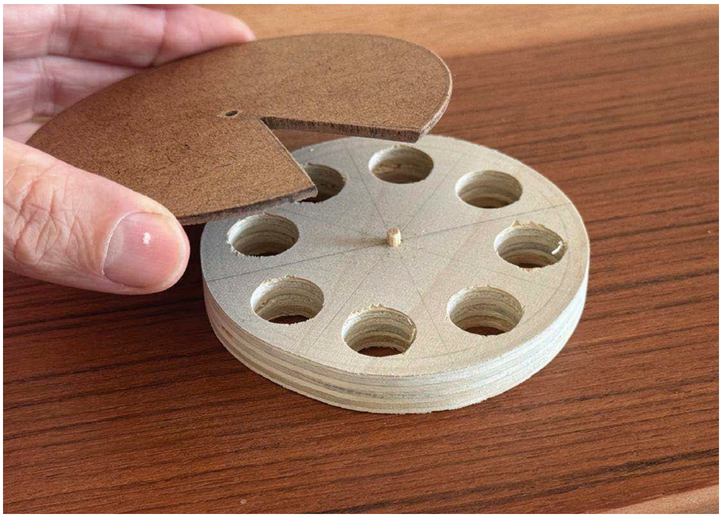
The base

Working with small parts can sometimes be difficult and dangerous, especially when using machines. It's a good idea to keep the base of the workpiece attached to more material for as long as possible, so you can more easily secure the workpiece while you're machining it. And once the base workpiece needs to be cut free from the rest of the material, use proper techniques, safety equipment and common sense when finishing up the rest of the machining operations.

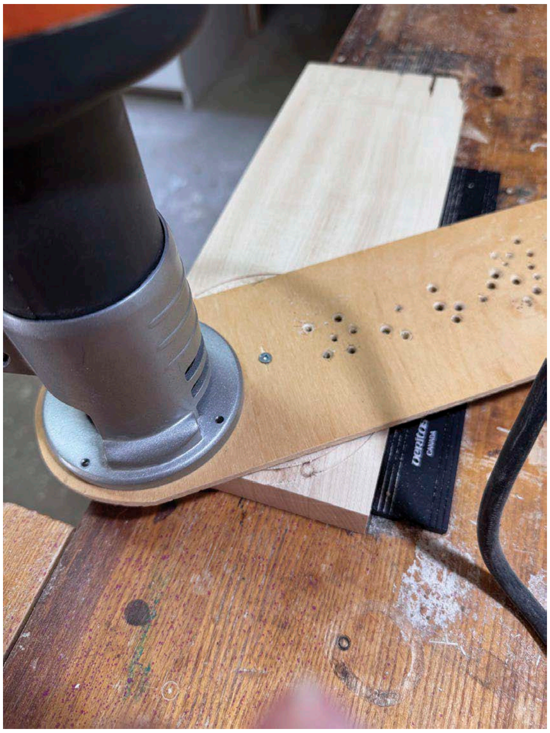
It's possible to make the base from flat sawn material, but I opted to rip a piece of flat sawn material into narrow strips, rotate them all 90° and re-glue them. This provided me with a more stable blank, as it's less likely to warp over time. It also has a simpler grain pattern on all surfaces, including the edges, which I liked for this small project.

I used a small circle-cutting jig, as well as a 1/4" diameter straight bit in my trim router to start shaping the circular base. I screwed the jig to the underside of the base, so once the bottom was attached the hole would never be seen.

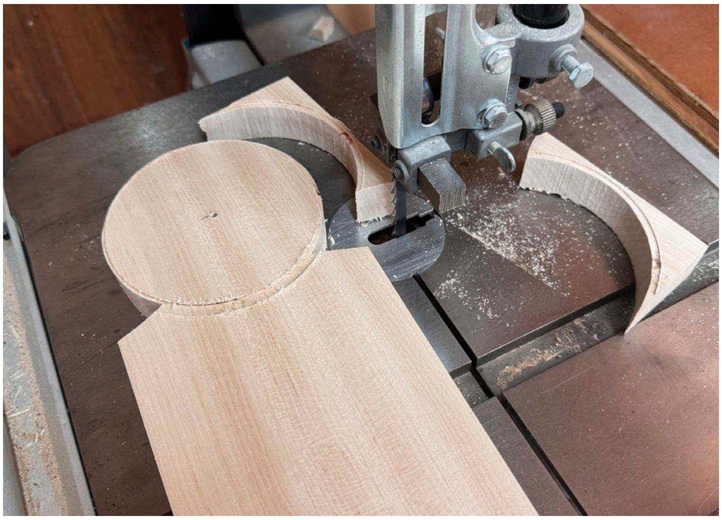
Rather than expect the small router bit to remove all the waste, and shape the circular base, I opted to do a light pass first, about 1/16" deep. I then removed the jig, trimmed much of the waste on the bandsaw, and re-installed the jig on the base. Trimming on the bandsaw allowed me to remove a lot of waste, so the router and bit had an easier time. It was also safer. Slow router passes, sneaking



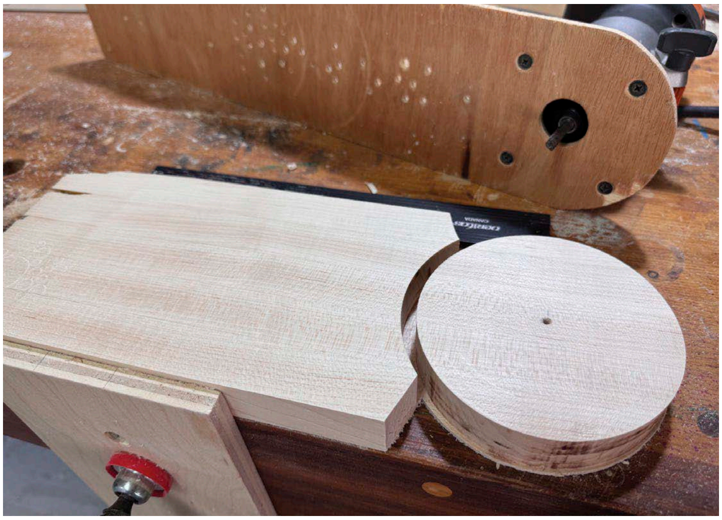
Simple Mock-Up – Brown spent about 20 minutes on this basic mock-up, which allowed him to work out some of the design and dimensional details.



First Cut Isn't the Deepest – With the circle cutting jig screwed to the underside of the base, Brown machines a shallow first pass. Next, he can remove the circle jig and cut away much of the waste.



Remove Some Waste – Notice how Brown left the round workpiece attached to the rest of the blank. This is so the small workpiece can still be secured to a worksurface while machining it. Removing some of the waste now will make it easier to rout the round base to shape.



Almost Done – A router can be used to cut through the vast majority of the material, though the last 1/16" or so can be cut on a bandsaw. This makes the routing operation safer.

up on the final depth, was critical. Also, with the base stationary, rotating the router in a counter-clockwise direction is also critical, so you're not climb cutting. I stopped making passes once there was about 1/16" of material remaining holding the base to the rest of the material. At this point, I cut the base free on the bandsaw.

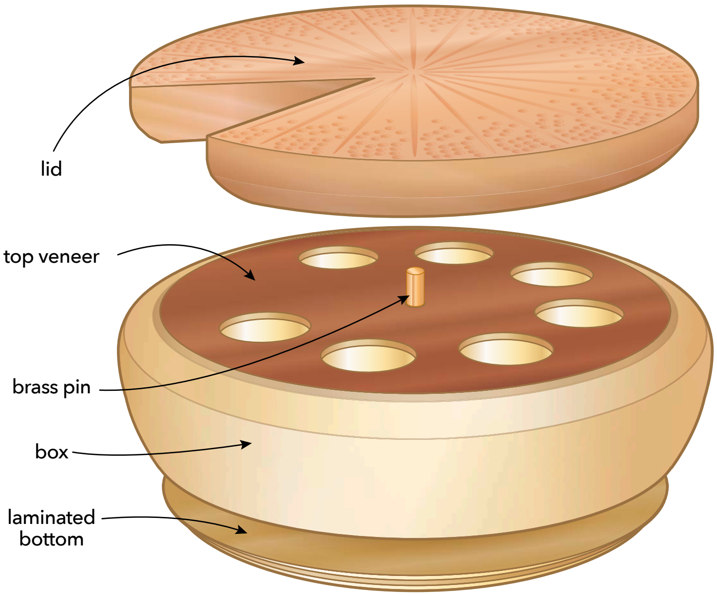
Add fancy veneer

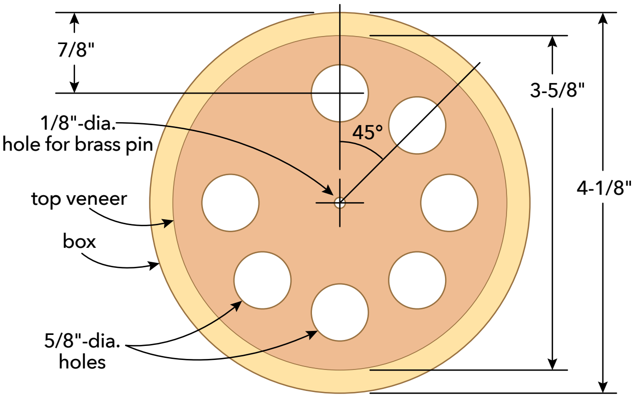
There's nothing wrong with skipping this step, but I wanted to add figured veneer to the upper surface of the round base to make the pill box more enjoyable to use.

I trimmed a piece of burl oversized, applied an even coat of glue to the upper surface of the box, then used clamps, cauls and a few layers of paper to bring the assembly together. The paper ensured the cauls wouldn't be glued to the veneer. I used a sharp knife to trim the veneer flush with the edge of the base once it was dry. No need to be too careful here, as the next step will further shape this edge.

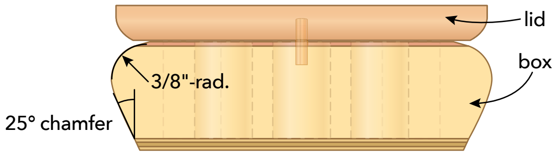
Shaping the edge

This step is a bit finicky, but adds a nice shape to the overall project. I chose a 3/8" radius round over bit to shape the upper edge of the round base and installed it in my router table. Since the base is small, machining this freehand would risk injury and damaging the base. I made a very simple jig from 3/4" thick plywood that would help guide the round base while it was being profiled. I cut a curve in the end of the plywood that was ever so slightly larger than the diameter of the round base, allowing the round base to fit inside the arc, but just barely. It doesn't have to be perfect, as the bearing on the router bit will do the majority

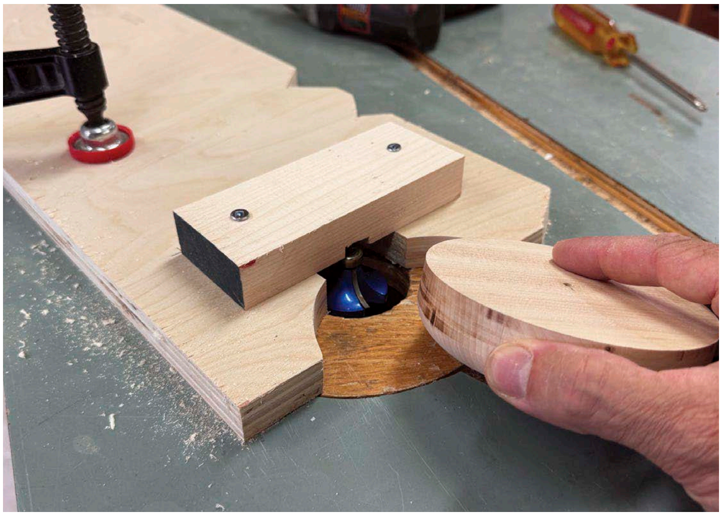




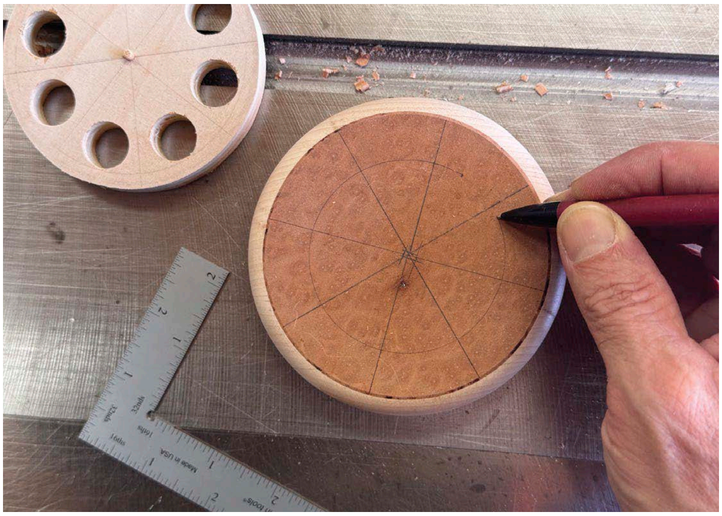
BOX TOP DETAILS



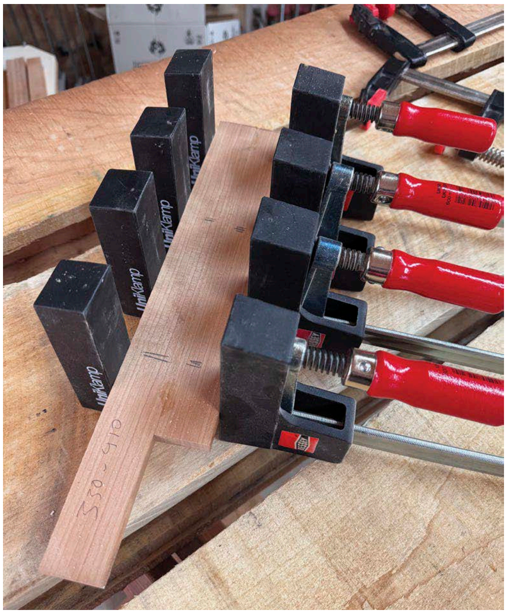
SIDE VIEW



Round Over the Edge – Brown made a simple jig, with a curve cut into its end, to assist with routing a round over on the edge of the round base. While machining the round over, it's important to rotate the round base in a counter clockwise direction to avoid climb cutting.



Add Intersections – You can either use a compass to mark the locations of the cavities on your base, or do as Brown did and reference your finger on the outer edge of the base and mark the circle.



Glue Up the Top – Although you can use flat sawn material for the top, Brown opted to glue up thin slices of quarter sawn pieces. First, he glued two longer sections together, then he cut that lamination in half and glued those two halves together.

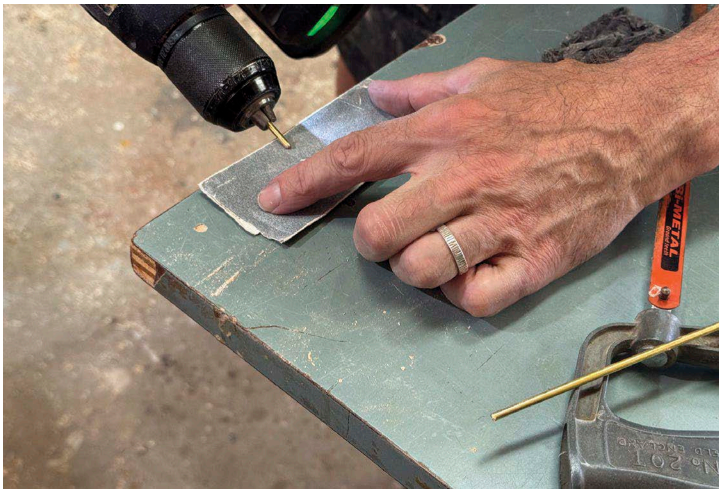
Ease the Edge – A file will help you ease the lower perimeter of the top, leaving you with a more refined shape.

of the guiding. A second piece is added on top of the jig to ensure fingers don't get close to the rotating bit. This jig provides some assistance for bringing the base to the router bit, while also making the operation safer. It gets clamped to the router tabletop, with the arc of the cutout in line with the forward edge of the bearing.

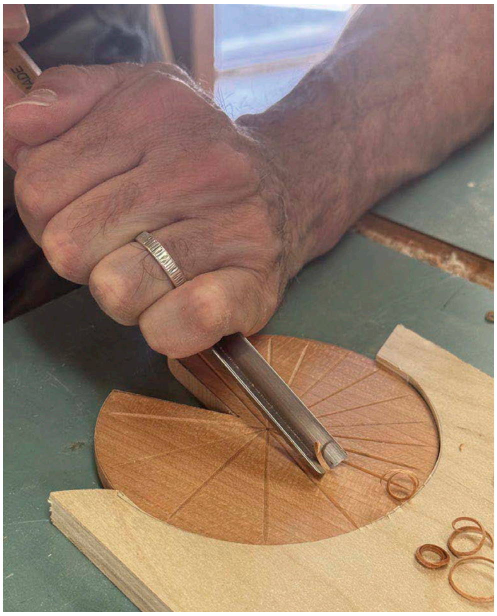
Start shaping the edge with the router bit lower than you want to finish, and raise it slightly after each pass. Removing less material per pass will leave you with a smoother edge and be safer. It's also important that the round base be rotated counter-clockwise while being machined; climb cutting in this situation will cause many problems.

Create cavities

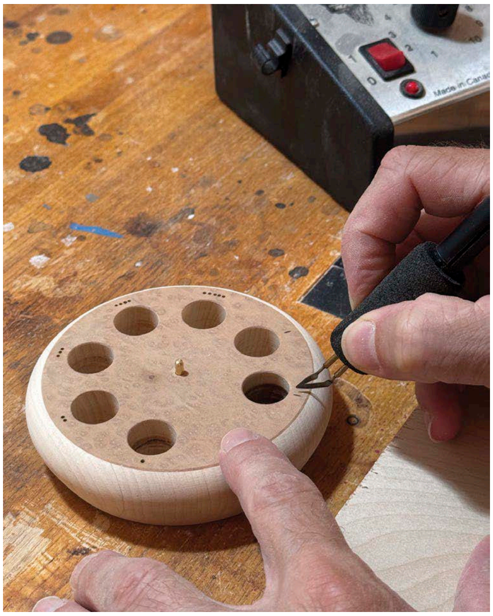
Lay out the eight sections on the top of the round base, then add a circle to locate the centre of each of the seven holes that needs to be bored. I used my finger against the edge of the base to



Rounded Tip – Once the brass pin has been cut to length, chuck it in a drill and round the tip on some coarse sandpaper. Like sanding wood, go through progressively higher grits, then use steel wood to smooth and buff the brass pin.



Vein Lines – Brown adds texture to the top, starting with carved vein lines radiating out from the centre point of the lily pad lid.



Days of the Week – Although there are a lot of approaches for indicating what day of the week each cavity represents, Brown chose to add a series of dots and slashes with his pyrography tool.

Wipe It On – Shellac can easily be applied to a small project like this box, though many other finishes would also work well. Multiple coats of shellac can be hand-applied in one day, then buffed to your liking with #0000 steel wool and wax.

guide the pencil while drawing the line, but a compass also works well. The intersections are the centre points for the seven holes.

It's possible to bore holes only part way through the round base, but that leaves an uneven hole bottom that I didn't like. Bore the 5/8" diameter holes, completely through the round base, on the drill press, ensuring the base is clamped securely while drilling. I found I needed to drill slowly and clean the hole frequently while drilling, so the inner edges of the holes didn't scorch. Remember to leave one spot without a hole, as there are only seven days in a week. The undrilled section can be seen as the beginning of the week. The user might even prefer to return the opening to this undrilled area after obtaining each pill every day, for a cleaner look.

Add a bottom

Because I drilled the holes completely through the base, a bottom was needed. The bottom also covers up the screw hole made when I attached the circle cutting jig to the blank. I opted for laminating three layers of cherry and maple veneer, alternating their grain directions, to create a thin piece of plywood. I liked the visual it added on the bottom of the edge.

Once it was created, I glued it to the underside of the base. I trimmed it flush with a scroll saw, while the blade was tilted slightly, undercutting the edge of the bottom slightly. The important part is to not cut into the centre portion of the shaped edge, though cutting into the lower portion was fine, as it's going to be further shaped in the next step.

More edge shaping

I chose a 25° router bit to shape the lower portion of the edge. This added a nice visual, while also made the small box that much easier to pick up and grasp. The last thing I want is for the user to drop the box while picking it up or while turning the box over to obtain the pill, ruining the proper weekly distribution of pills. If you don't have a 25° router bit, either a 45° chamfer or another round over would work.

Using the same curved jig to guide the round base, I made multiple passes to sneak up to the final shape on the router table.

The lily pad top

At first, I considered a round top with a hole in it, centred over the cavities, to allow the pills to travel through. It would have worked fine, but lacked a more pleasing visual. The shape of a lily pad popped into my mind and I was very happy it did. I enjoy shapes from the natural world and this one was functionally perfect for this situation, too.

Again, flat sawn stock will work just fine, but I prefer the simpler look of quarter cut stock. It also tends to move less, which means the lid will stay flatter over the years. I ripped some 3/8" thick strips from 6/4 stock, ensured the edges were square, and glued two 10" long lengths together. Once this was dry, I cut the workpiece in half and glued the two halves together. Doing this in two stages is much simpler than doing it in one stage.

Once the glue was dry, I drew the shape of a lily pad on the blank and cut it out on my scroll saw. I used a file to rough shape the edges, so they were undercut by about 1/8", then used sandpaper to further fair the edge.

Make it rotate

I used a 1/8" diameter brass pin, secured in the centre of the base, as a pivot point. A hole in the underside of the top will make the opening in the lily pad top rotate around the series of seven holes. I drilled both on the drill press, then cut the brass pin to length. So the lid could easily be re-installed weekly, I rounded the upper tip of the brass pin by chucking it in my drill and using sandpaper, then steel wool, to remove some of the brass. The brass pin gets epoxied in place after a finish has been applied.

It goes without saying that you have to be careful not to drill the hole in the underside of the top too deep, or it will be visible from above.

Textured top

When it comes to adding texture to the upper surface of the top, there are many options. Testing out what approach you like best on a piece of scrap will help adjust your approach, especially if you're new to texturing.

First, I sanded the surfaces of the top. Next, I added a few straight lines to guide me as I added a series of veins on the top. Finally, I used my rotary tool, equipped with a small burr, to add more texture. I created more dense texture towards the outer circumference of the lid, and less dense texture about 1/2" in from the outer edge. Being patient during this process will help yield pleasing results.

Days of the week

Though not needed, adding the days of the week to the box will help protect against missing a pill, or taking two on one day. The only trouble is there's not a lot of room to do this. There's no room to write out the day of the week, so some form of shorthand is necessary. An initial is possible; "M" for Monday, for example.

I didn't like the look of just initials, so I considered Roman numerals, but my friend doesn't know them well enough to be sure they'd catch a pill dose mistake, if one happened. I landed on adding a dot representing each day of the week, and a slash for each day of the weekend. This meant a single dot for Monday, five dots for Friday, a single slash for Saturday and two slashes for Sunday. Continuing with six and seven dots for the weekend was an option, though at that quantity they're hard to quickly recognize.

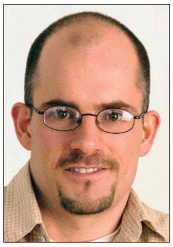
Time for a finish

With the surfaces all sanded and prepped, it was time to decide on a finish. Usually I know what type of finish I'm going to apply before starting a project, but this time I hadn't given it much consideration.

I almost went with an aerosol spray polyurethane to coat this box, but at the last minute opted for a hand-applied shellac finish. Spray cans are great for small projects, but I like the depth and feel of a shellac finish, too. I wiped on a few quick coats, let it dry for about 10 minutes, then reapplied a few more quick coats. After another 10 minutes I was able to wipe on a couple more coats to all the surfaces and give it an hour or so to completely dry.

At that point, I gave all the surfaces a light sanding and started the process again. I find the more coats, the longer it takes for each coat to dry. Although shellac dries very quickly, if the previous coat is at all sticky while wiping the next coat on, give it more time to dry.

Once you're happy with the look of the finish, you can use #0000 steel wool and wax to buff the finish to your liking.



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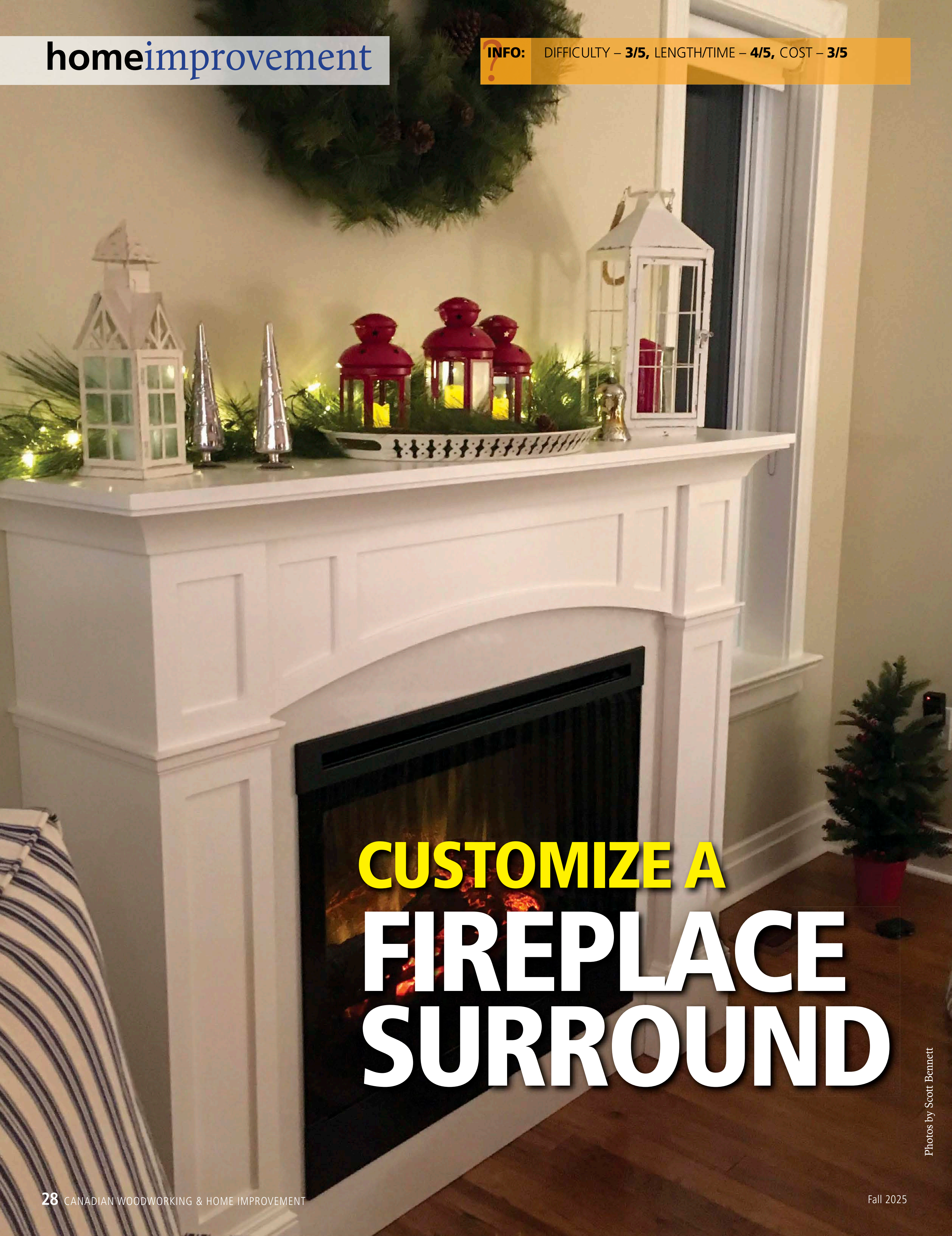


CUSTOMIZE A FIREPLACE SURROUND

Photos by Scott Bennett

Making a fireplace surround is well within reach for most woodworkers. It can be tailored to your home and built to accommodate any type of gas fireplace insert you'd like.

BY SCOTT BENNETT

My wife and I wanted to add a fireplace to our living room for more ambience and character. We discovered wood burning and gas weren't an option for the wall we had in mind, so we started looking at electric fireplace options at furniture and hardware stores. Unfortunately, we weren't happy with the look of the flames in the firebox or the design of the mantels we saw. We turned our focus to fireplace stores and were pleasantly surprised with the quality of electric fireplace inserts that were available. We found a fireplace insert we liked, so I designed a mantel that had much more character than what we saw in retail stores.

The design of the fireplace mantel was inspired by the Cape Cod style, where white painted interior woodwork is common, along with clean lines. It's designed to work with a Dimplex electric fireplace insert. It took about four versions of scaled drawings to come up with this design. I used birch plywood, poplar and stock mouldings. You may not find the same mouldings at your local retailer, but something similar will work. I made the crown moulding on the table saw. I also purchased some quartz door jamb for the fireplace surround (space between the fireplace insert and the mantel).

I'm not including precise measurements in this article, as the dimensions and proportions are going to be different for everyone. Your tastes may also differ.

You may find it's a lot easier to build this project after making a full-sized drawing on a large piece of paper, a large piece of cardboard or a piece of sheet good. You can take measurements directly off the full-sized drawing as you build, increasing clarity and decreasing mistakes.

Important warning: Make sure you comply with building codes in your area to ensure the mantel is far enough away from the specific fireplace unit you're using. The fireplace insert we used is an electric fireplace with zero clearance and the mantel is separated from the fireplace with quartz stone.

Building the foundation

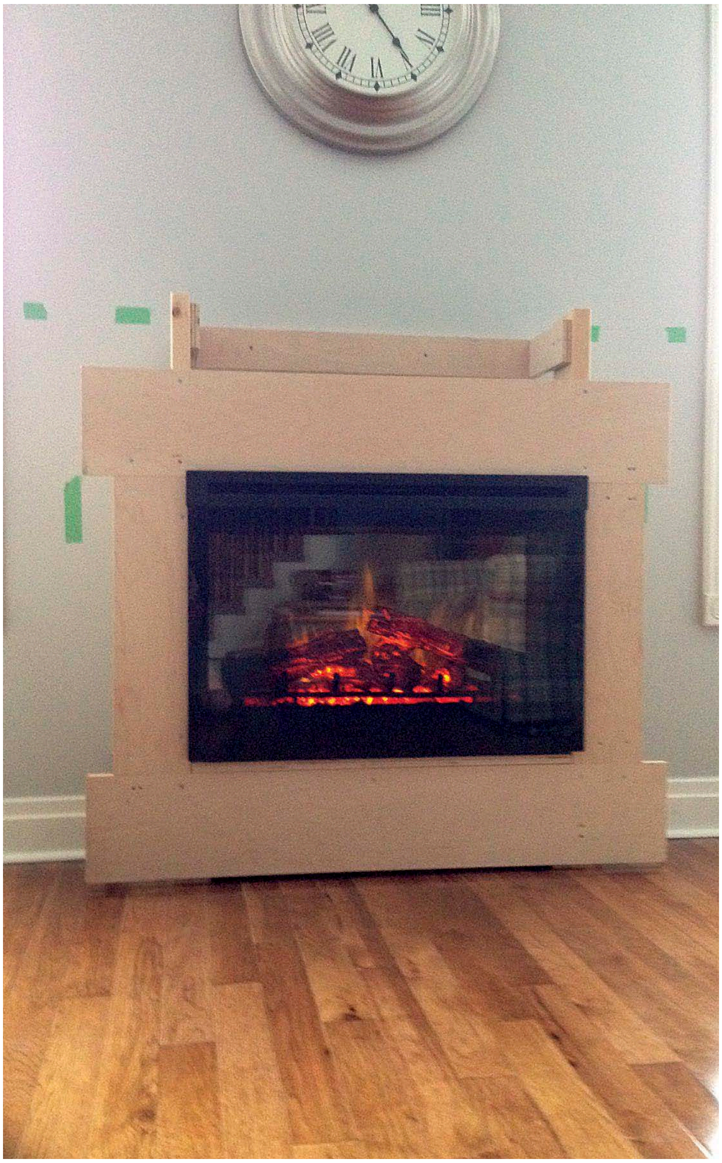
The fireplace insert plugs into the wall for power, and fortunately there was a plug behind the location we chose for the fireplace mantel. The first step was to build a platform to set the fireplace insert on, at the correct height, using 2x8s and plywood. The second step was to frame the structure to support the fireplace mantel shelf and the quartz surround on the front, using 2×4s and plywood. I also made a black plate for the bottom of the fireplace insert to make the fireplace box appear larger.

I waited to cut and install the quartz surround until I had the fireplace mantel built, to ensure I measured and installed the pieces correctly.

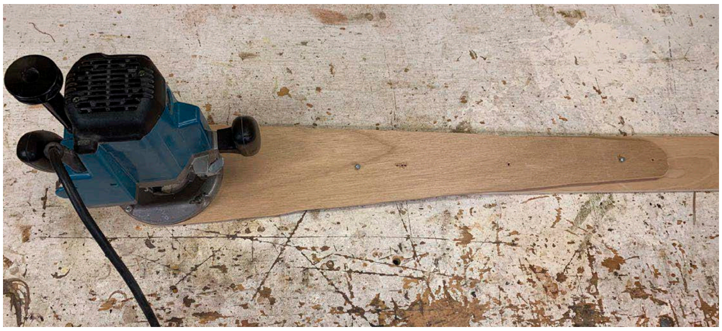
Four sections

The mantel is designed in four separate sections so it could be moved easily, as I would be transporting it to another workshop for spray finishing. It's also easier to build and handle separate pieces, especially if you're working alone.

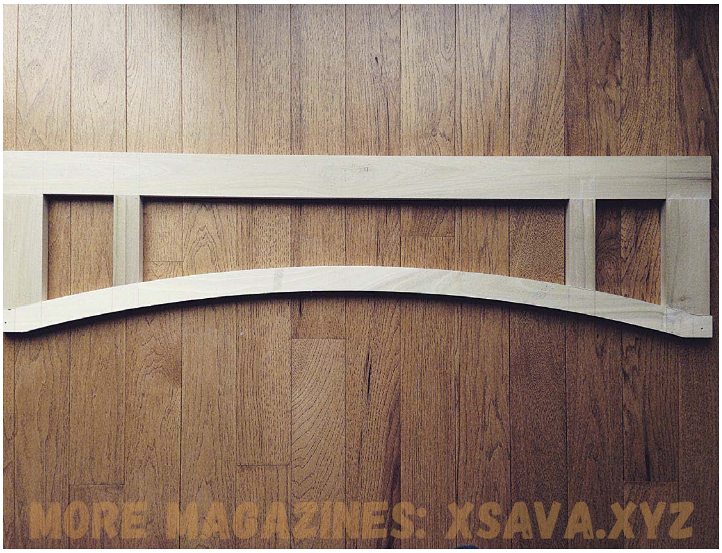
The first section to be built is a header for directly above the fireplace. Next, there are two column sections, one on either side of the fireplace. The fourth section is the mantel shelf, the uppermost section. The header is set behind the side columns, and because of that, the columns have a filler strip in them so the mantel will rest snug up against the quartz surround.



Frame It Out – Before the fireplace surround was made, Bennett framed the area so he could install the fireplace to the wall down the road and install the quartz to the area immediately between the front of the insert and the inner edges of the surround he will build.



Router Trammel – In order to guide the router in an accurate arc, Bennett used a long piece of plywood. He didn't have a piece that was long enough, so he attached two pieces together.



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Header Frame – Here, the header frame is complete. Next, a router needs to be used to add a rabbet in the rear face, surrounding all the panel openings, so panels can be cut to fit those openings.

Build the header

The most challenging part of this build for me was the header, because of the curved shape. I decided to install the panels after I built the frame by rabbeting in the panels from the back, which simplified the build. I also decided to use butt joints for the frame, as I would glue in plywood panels to provide the structural support, and this also simplified the build. The inside of the project isn't visible, so simplified construction techniques like these are possible.

The first step was to cut the curved bottom rail. I attached my router to a trammel - two pieces of plywood screwed together that extends 8' long. This allowed me to cut an arc with the router by installing a screw at the opposite end. Fortunately, my workshop has a plywood floor which was the perfect work surface to secure the router and the parts to.

I secured a sacrificial board to the floor and then mounted a 3/4" × 4-1/2" poplar board to it to cut out the bottom rail. I blocked up the trammel to the right height and secured it to the floor 6' away from the cutting edge so I could cut the radius for the bottom edge of the bottom rail. I used an upcut spiral router bit to cut the arc in a few passes, but a standard straight router bit will work, too.

I wanted to keep as much material intact on both ends of the lower curved rail as possible, so I opted to stop the curved portion on the top of the lower curved rail immediately after the rail extended behind the vertical member of the side column. This would give me a small amount of extra material to screw through, fixing the header to the columns on both sides. In hindsight, this was likely more work than was needed. It took some careful planning to stop the arc on both ends of the upper edge of the lower curved rail and it really didn't give me that much extra material. The images in this article show my process, and I'll take you through the steps I took, but you'd be fine not stopping the curved upper edge on the lower curved rail.

With this arc defined on the bottom rail, I then marked out where to stop the arc on the top edge of the bottom rail. I then extended the length of the trammel to cut a slightly larger radius into the top edge (the pivot point stays in the same location). I carefully started and stopped the cut on the top edge so the straight portion of the rail would remain intact. To make these radius cuts, make multiple passes with the router. Removing the whole thickness in one pass would not only leave a rough edge but also be dangerous.

I then cut the remaining parts of the frame. I started by marking out the location of the stiles (vertical parts between the top and bottom rail) on the top rail. I then cut the stiles longer than needed, as I would need to cut curves on one end. I set out the top rail and the stiles on the floor, ensuring all the stiles were square. I then laid the curved bottom rail on top in the location I needed. This allowed me to trace the curved cut line on the stiles.

I cut the curved ends of the stiles on the bandsaw and dry fit the frame. Once I was happy with the fit, I applied glue to the parts and clamped them up. Yes, this is very weak joinery, but that's fixed in the next step.

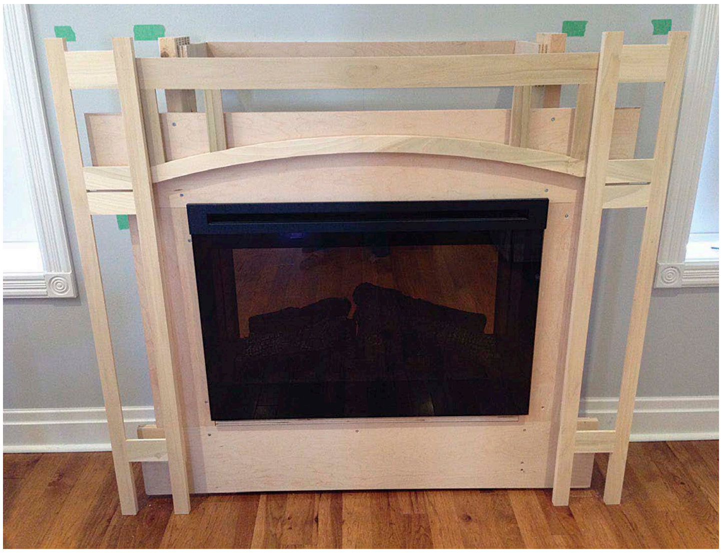
Add dowels for strength?

Although I just used butt joints to temporarily join the header frame, then added the routed rabbets in the next step carefully, there's also nothing wrong with boring a hole across the width of the joint and inserting a length of dowel rod to further strengthen the joint. When the glue is dry, just flush trim the dowel with a hand saw and sand it flush. As I mentioned previously, most of the surfaces of this project won't be visible, so you have some flexibility when machining some of the joints. And even if a few of the joints are visible, sanding the joints smooth and adding a few coats of paint will often cover up any signs of joints. That's one of the nice things about paint-grade projects.

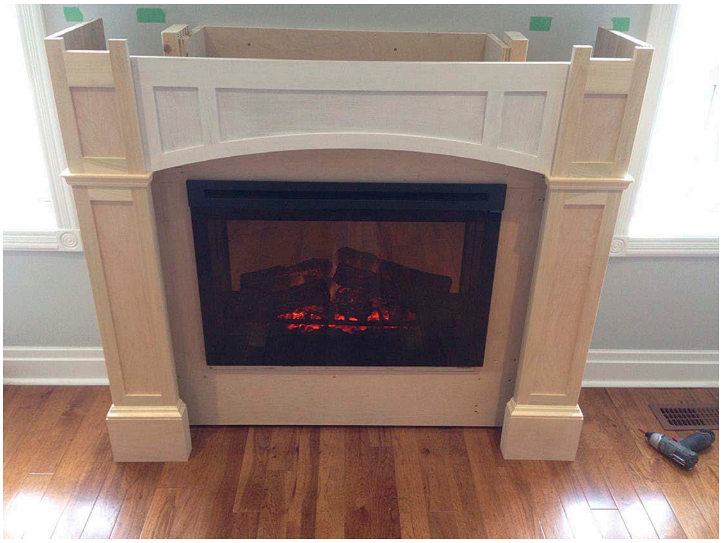
Rout rabbets

Once the glue dried, I cut a 1/4" rabbet, 1/2" deep along the inside edge of each of the panel openings. I did this carefully to avoid dislocating any of the butt joints on the frame. If you added dowels across these joints, you don't need to be as careful while machining the rabbets.

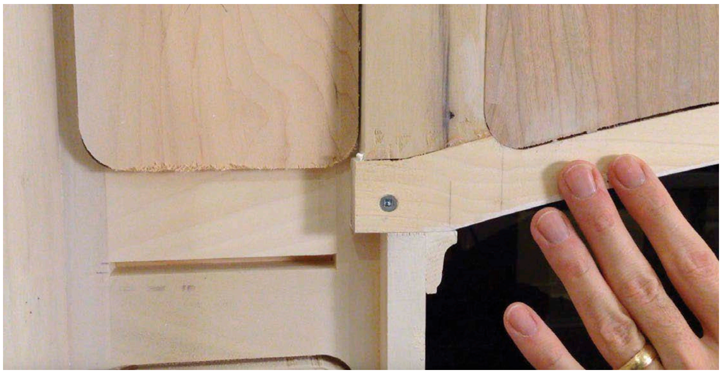
I then traced the shape of the panel openings on 1/2" plywood. I added 1/4" to the perimeter and cut out the parts, including rounding the corners so they would fit in the routed rabbets. Once all the panels were fit, I glued and clamped them in place. It may seem odd to glue panels in place, however, these panels won't move with seasonal changes in humidity, and they provide the structure for this simplified frame and panel design.



Lots of Frames – With the frame sections complete, the panels can be cut to size and installed. At this stage it's a good idea to bring the assembly into place to make sure everything is fitting nicely.



Panels Complete – With the panels installed, this project is starting to come together nicely.



Inner Details – Here, you can see the curved lower front rail, and how it mates with the vertical stile. He shaped the curved rail to have a straight section on both ends, but that's not necessary. You can also see the 3/4" × 3/4" filler strip that's attached to the vertical edge of the inner face of the column.

Build the columns

The columns on either side of the fireplace mantel form the vertical visual interest. I designed them to have a large panel with a smaller panel on top. These are divided by a piece of shingle trim. The bottoms of the columns have a baseboard detail using a 3/4" board and baseboard cap trim - typical of what's found in historic homes.

I built the front of the columns the same way as the header. I cut out the frame parts, glued them together, routed out the rabbets, cut panels to insert into the rabbets, and glued in the panels. With the panels assembled, I then added the sides, which are made of 3/4" birch plywood. I glued these together using biscuits, allowing the front panel to extend slightly beyond the surface of the plywood. It's important that this is glued together square. After the glue dried, I used a plane and a card scraper to level out the transition between the front panel and the plywood. Once primed and painted, this seam becomes invisible.

I also attached a filler strip where the front panel of the columns touch the fireplace surround. This is simply a 3/4" × 3/4" piece of solid wood, which also provides support for the header panel to rest on. Next, I added the shingle moulding at the top of the filler strip, around the front and outside of the column. I then added the baseboard (6-1/2" wide piece of plywood) and the base cap trim, wrapping it around the column from the filler strip to the outside of the column.

Assembling the columns and header

With both columns built, it was time to attach the header. I stood up the columns, set the header on the filler strips and clamped it in

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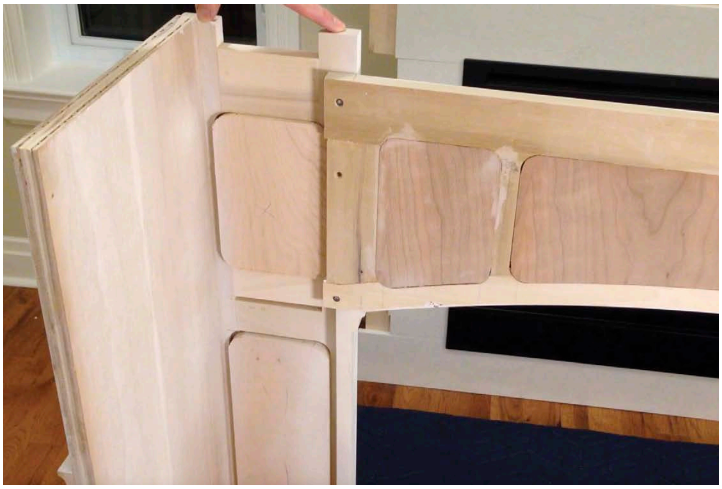
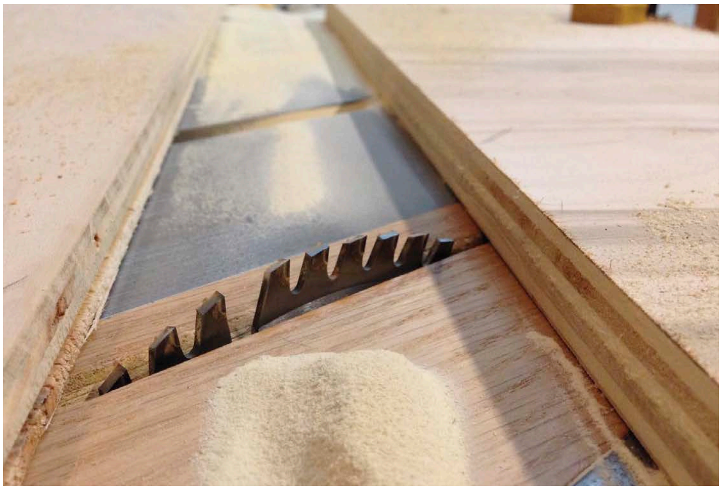
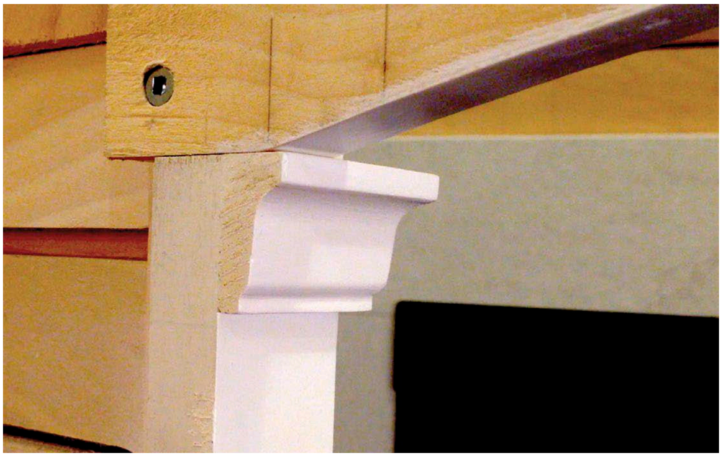


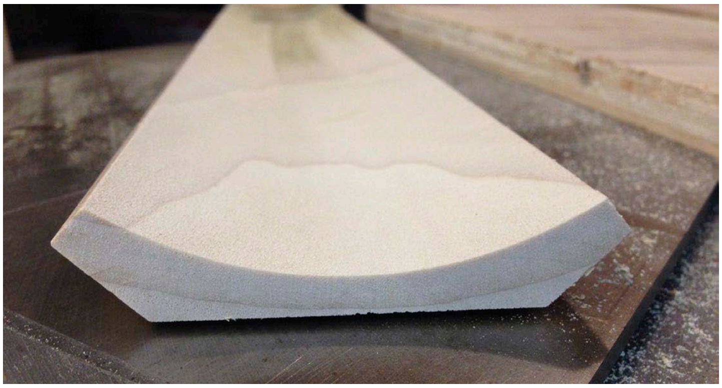
Imperfections Are Fine – You can see how the header mates with one of the columns, and just gets screwed together. The gaps across the top will be covered by the large cove moulding. The small gaps between the panels and the frame openings will also never be seen.



The Last Pass – Bennett made his own cove moulding by clamping two boards to his table saw surface, the same distance apart as the workpiece he's going to add the cove to. He sneaks up on the final cove depth with multiple small passes. The blade is shown at the height of the final pass.



Shingle Mould – The shingle mould gets fixed to the assemblies so its upper edge is at the same height as the lower end of the curved rail. They're just mitred and glued in place.



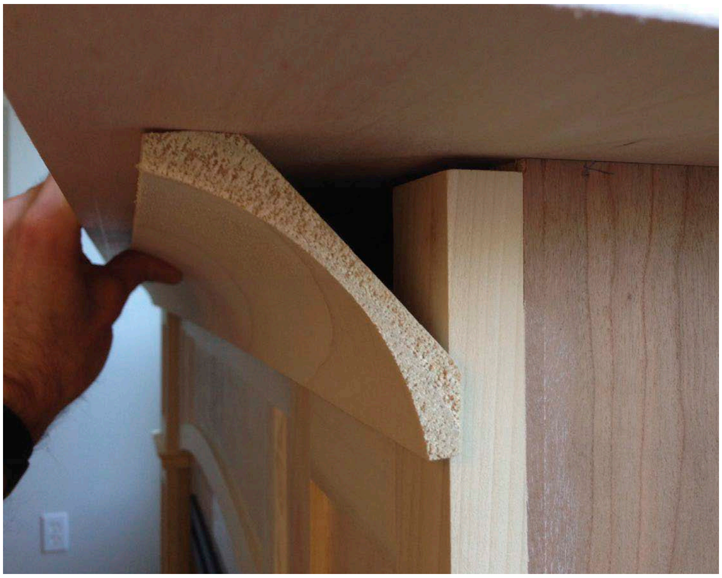
The Finished Cove – An even pass, at consistent speed and pressure, will provide a fairly smooth finish. It will still have to be sanded smooth, though, before being finished. It's often easiest to machine the cove first, then trim the edges to final width and angle.

place. Once I lined up the parts, I simply screwed the header into the column front panel with two 1-1/4" screws on each side.

Build the mantel shelf

For this project, I decided to make my own 3-1/2" cove crown moulding on the table saw. I've done this before and wanted to get more experience with it. If you haven't seen this done before, it's a process where the board is pushed through the saw on an angle to the blade, scooping out a curve. There are safety risks to this and it requires guides clamped in place. I suggest doing research if this is something you'd like to try yourself.

I cut the mantel shelf larger than needed, as it's easier to get the measurements right later. I set the oversized shelf on the columns and header, then centred it. I measured 2-1/2" down on the columns and marked a line. I held the crown moulding in place, to the line, and marked the location on the underside of the mantel shelf. I added 1/4" to the perimeter of the mantel shelf and cut it to size. I prefer to mark the size of parts when held in place, especially after reading Norm Abram's book

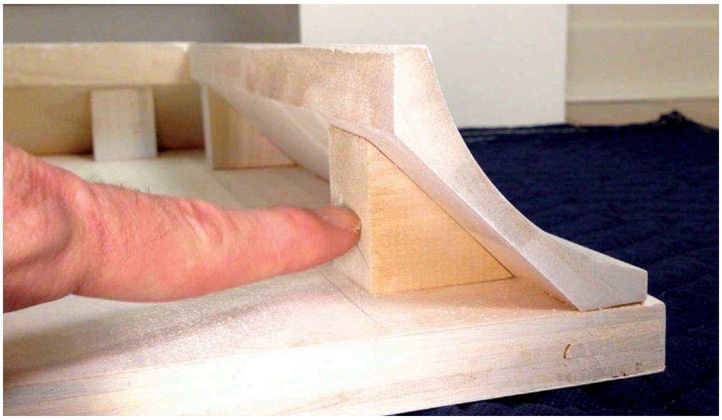


Put It in Place – Bennett positioned the cove moulding in place and marked where the edge of the moulding would end up. This allowed him to locate the moulding on the underside of the top panel.

Easy Edging – Ironing on edge tape, then trimming it flush, is an easy way to prepare the edges of any exposed sheet goods for a finish.

“Measure Twice, Cut Once”. He says, “Never measure unless you have no choice. Instead, base your marking and cutting on the actual situation.”

I finished the edge of the plywood with iron-on birch edge banding. I also cut glue blocks for attaching the crown moulding to the mantel shelf (not the columns). As I mentioned before, I needed to transport the fireplace mantel for spray painting, so the mantel shelf is designed to have the crown moulding attached to it. The joint between the crown moulding and the columns isn’t visible, so there can be a slight gap. I laid out the crown moulding and secured it in place with the glue blocks and some brad nails.



Crown Blocking – Blocks, cut with a 45° angle, get glued into place to keep the cove moulding secure for good.

Finishing the parts

With the build complete, it’s time for the finishing process. I sanded down all the surfaces with 220 grit sandpaper. I rounded the edges slightly by hand so they felt nice to the touch. This also helps prevent wear, as sharp corners are more susceptible to the finish chipping off.

I took this to a professional refinishing shop, where I was learning how to spray finish. I sprayed two coats of primer, followed by four coats of paint. I inspected and sanded each coat before applying the next. A sprayed finish is superior to a brushed or rolled finish, so it was worth the extra design effort to make sure I could

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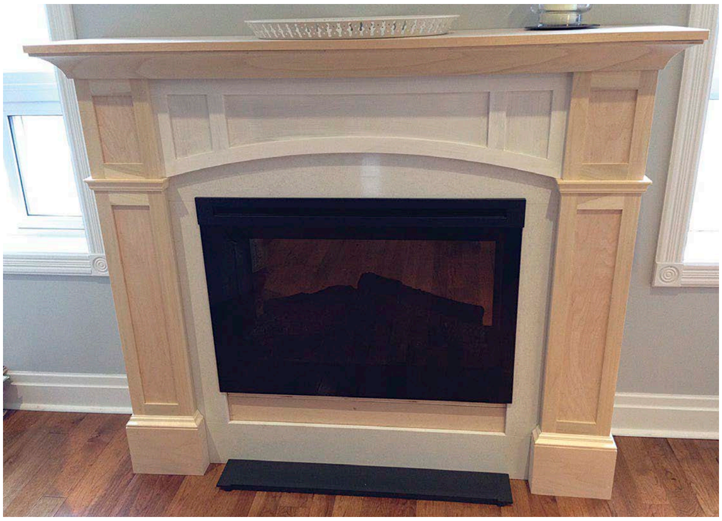
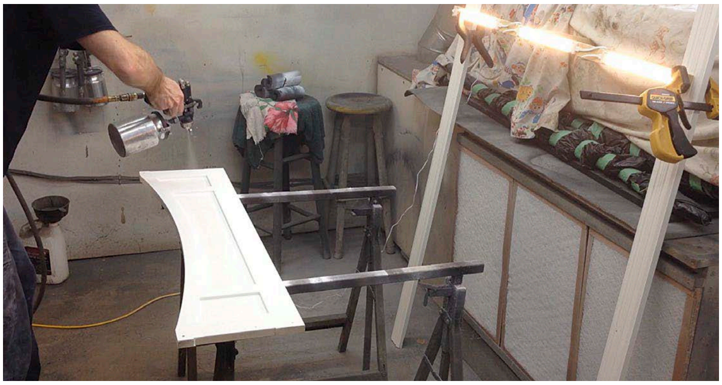
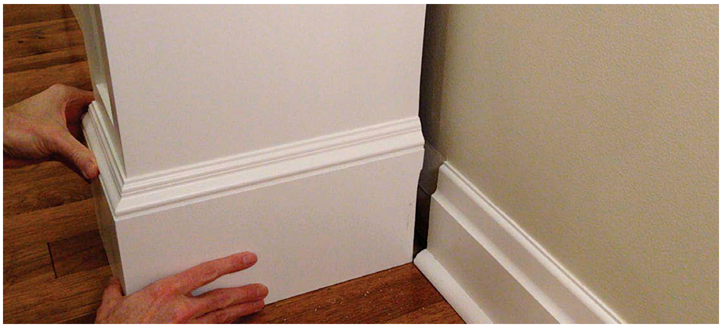


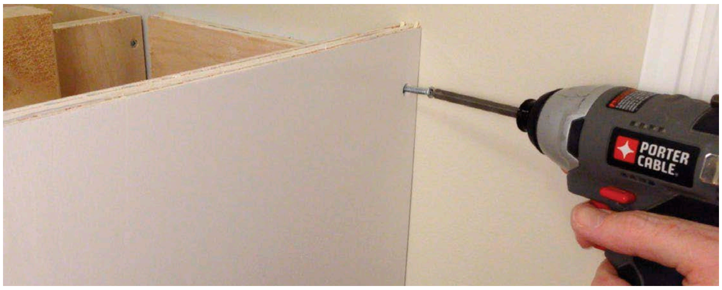
One Final Check – With all the parts made, it's best to check how they all fit into place with one another. It's easier to make adjustments now, as opposed to after a finish has been applied.



A Nice Finish – Spraying on a finish will leave you with a nice, even surface to enjoy for years to come. If you don't have access to spray equipment, it's also possible to brush on a few coats of protection.



Scribe to the Wall – The rear edge of the columns should meet the wall with minimal gap. The section of the column that will be hidden by the baseboard doesn't have to meet the wall snugly, though the baseboard will have to be cut away. You can alternatively scribe the lower edge of the column to the baseboard.



Screw It Down – Screws, through clearance holes, will do a great job at fixing the assemblies in place. If you can drive screws where they will eventually be covered, you don't have to worry about covering them up later. This screw will be hidden behind the cove moulding.

easily transport the sections. The finish has a beautiful satin sheen to it that looks amazing when light is reflected on it.

Installation

For the installation, the back of the columns and the back of the mantel shelf needed to be scribed to the wall. Before I scribed them, I had to add the quartz surround. I started by assembling the base of the fireplace mantel (columns and header), then pushed them to the wall. I marked out the location for the quartz door jambs, then carefully cut the parts on a tile saw. This was a little unsettling, as I'm not used to cutting stone and I didn't want to ruin a $130 piece.

I attached the stone to the framing with a generous amount of construction adhesive. I was careful to ensure the pieces were plumb, as the fireplace mantel needs to sit against them and this seam would be visible.

To scribe the fireplace mantel, I stood it in place and made sure it was plumb. I measured the shortest distance between the filler strip on the column and the quartz. I then scribed a line that distance on the sides and top with a pencil. I cut close to the scribe line with a jigsaw and then removed the remainder of the material with a belt sander. When sanding to a scribe line, I put a slight back angle on the edge so the leading, visible edge is what touches the wall, without interference from anything behind it.

I attached the bottom of the fireplace mantel to the frame on the inside by toe screwing it. Then I cut a 2×4 to length and mounted it

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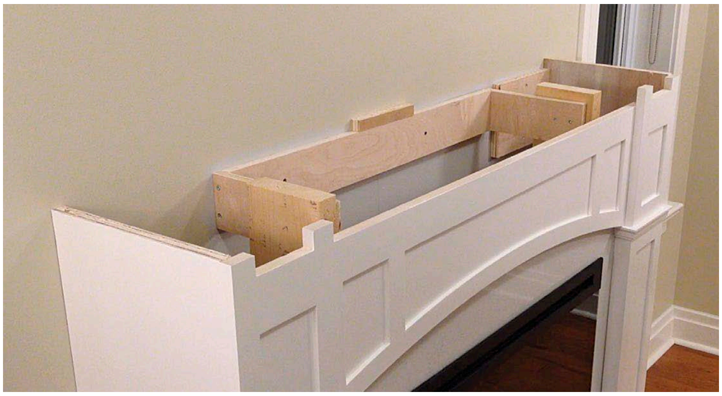
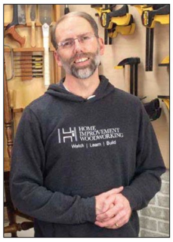


Top It Off – The assembly is now ready for the top to be installed. Framing along the wall will help support it.

Looking Good – Tight joints, simple mouldings, a nice finish and a clean installation are the keys to making a stylish fireplace surround.

to the wall at the back of the fireplace mantel to support the mantel shelf. This also provides a location to attach the fireplace mantel at the top with a screw from the outside as it is hidden by the crown moulding. The last step was to apply a few dabs of construction adhesive to the top of the fireplace mantel and 2×4, and set the mantel shelf in place.

The final step was to plug in the fireplace insert and slide it into the opening. The flanges on the sides and top overlap the quartz surround. I added the additional black panel below the fireplace insert. This fireplace really adds the character and charm we wanted in our living room and we're pleased with how it turned out. It was a fun project to build and the end result was very rewarding.



Scott shares his skills on two YouTube channels. You can see plans for this project on his website at WoodenItBeNice.ca

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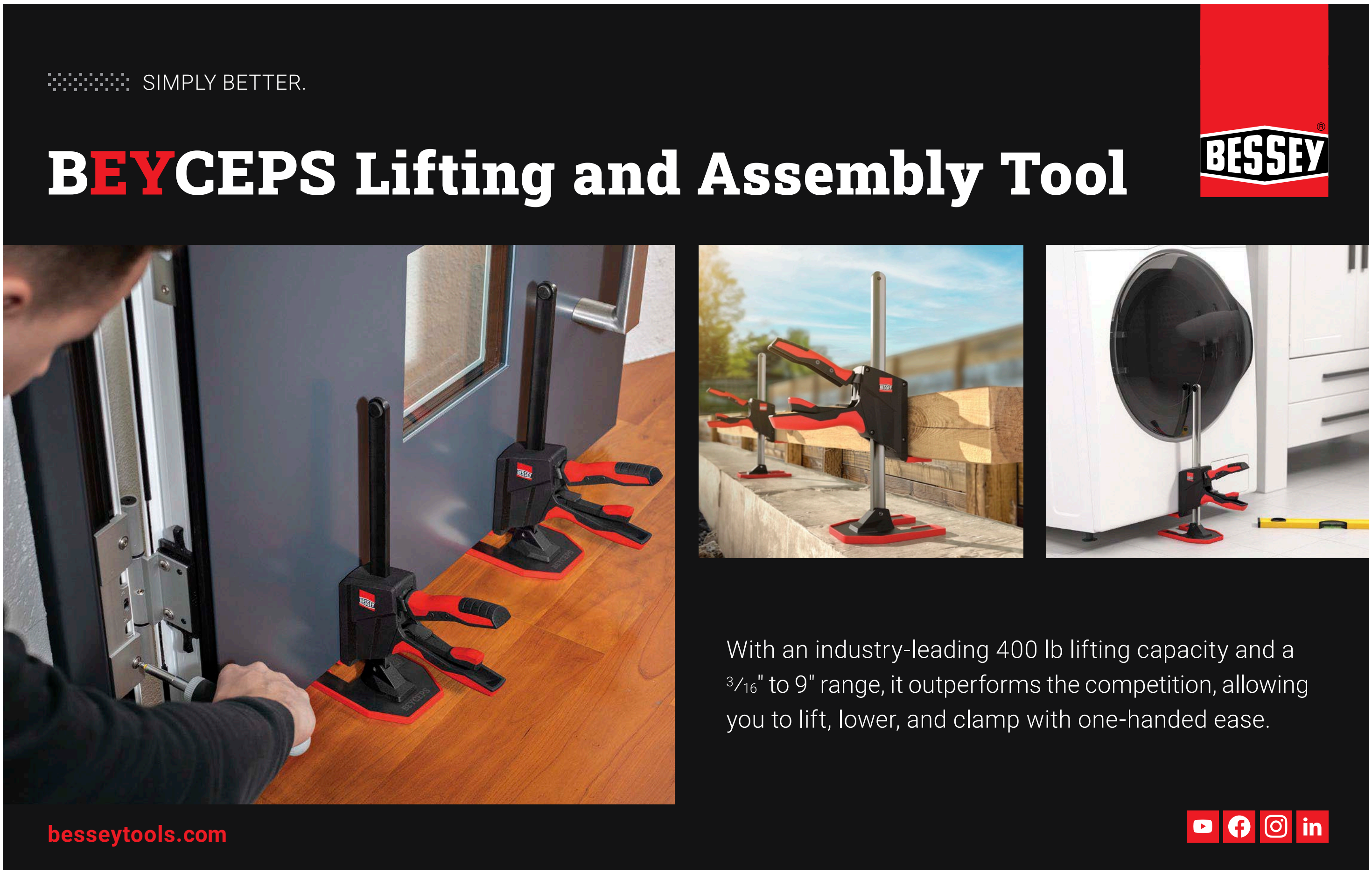

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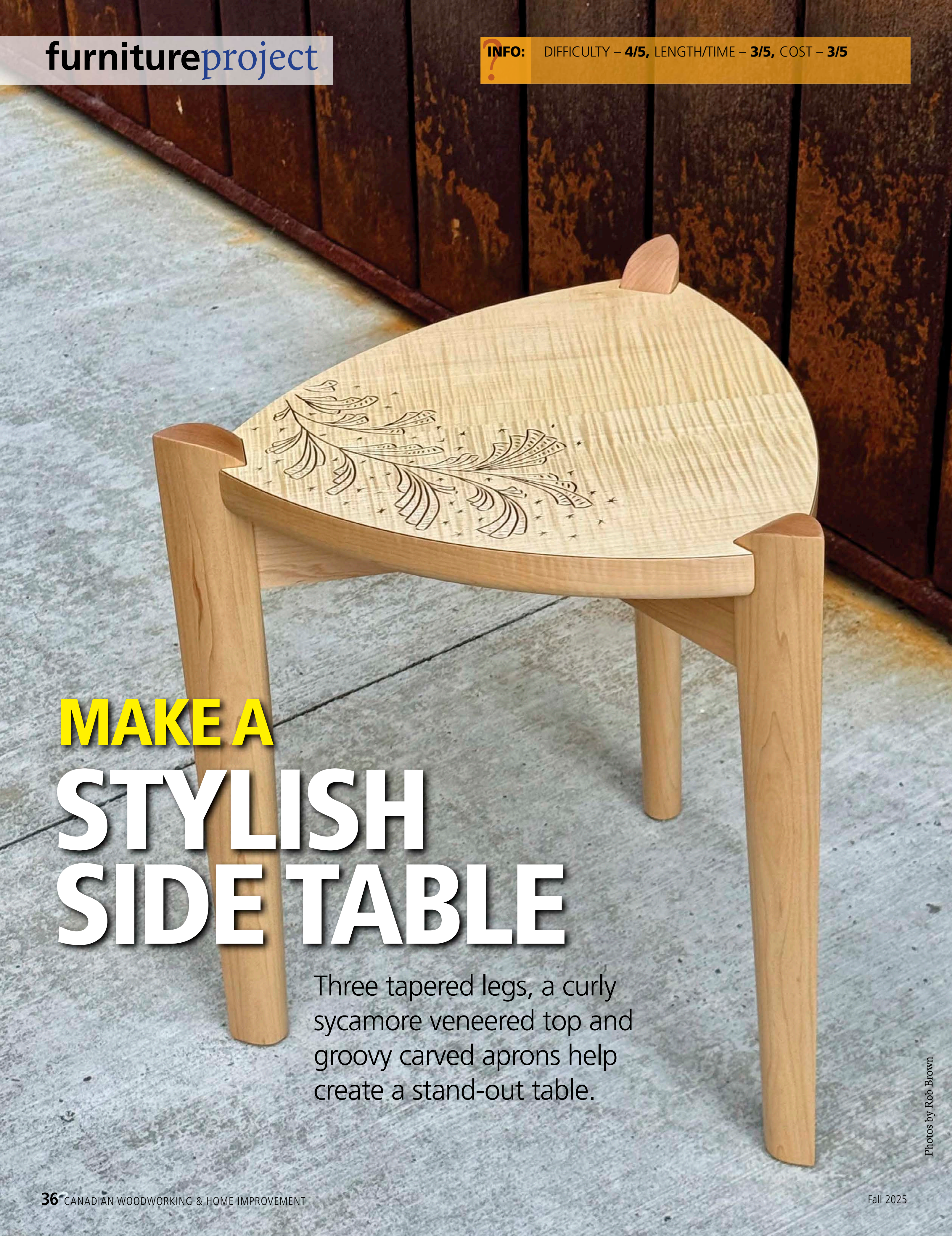


MAKE A STYLISH SIDE TABLE

Three tapered legs, a curly sycamore veneered top and groovy carved aprons help create a stand-out table.

Photos by Rob Brown

BY ROB BROWN

We needed a small side table for our living room, so I set forth to design and build one that would not only hold a phone, cup of coffee and a book, but also be unique and eye-catching.

The design stage

The design went through many stages. I knew it was going to be three-legged, but other than that, other details were wide open. Using 2×4 material for the legs and aprons, and some scrap sheet goods for the top, I mocked up a few different designs in the shop, brought them home and placed them next to our new living room chair. My wife and I could then talk about the pros and cons of each design and do our best to refine one to our liking. Thankfully, we were generally on the same page, and this is the design we came up with.

We knew we wanted something fairly light in colour, as many of the other pieces in the living room are on the darker side. This meant maple for the legs and aprons. I was very tempted to use a contrasting wood species for the tabletop, but since I had some beautiful curly English sycamore that would be perfect for this sized project, I opted for it. Making the top out of a darker species would be an attractive option.

The rough design of the mock-up provided overall measurements to work with, as well as the shape of the legs. I was able to play around with one of the mock-up legs to further refine the cross section and overall shape of it, which was great once I got to shaping the real set of legs for the table.

Legs and aprons first

I broke out the three legs from 8/4 hard maple. Since the legs finish only 1-1/2" thick, this gave me some material to work with. I wanted the two outer faces of each leg to have the simplest grain possible. This meant I needed to machine them so the annual growth rings in the end grain were running as close to front-to-back direction as possible. I jointed them and ripped them on the table saw to achieve this, then completed the breakout process on the jointer and planer. I then cut the three legs to 1" longer than their final length.

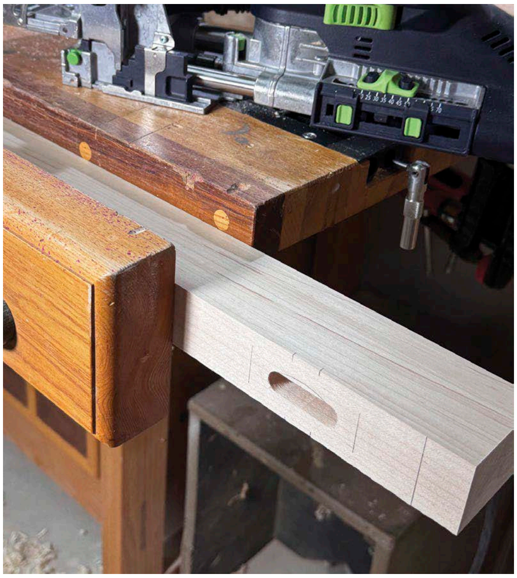
While I was breaking out the legs, I machined three lengths of lumber that would eventually be made into the three aprons. Even though the aprons were going to finish thinner than the legs, I left all of these parts the same thickness for now and dressed them to final thickness after the leg-to-apron joinery had been cut.

Leg joinery

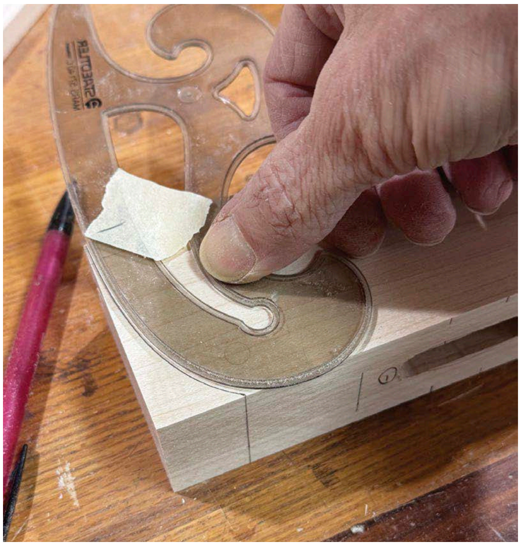
There are many options for joining the legs and aprons. Mortise and tenon joints are always strong. Adding a number of dowels to each joint would also work just fine. I opted for Dominos, as they are quick and accurate to cut and create a strong joint. With the legs and aprons still the same thickness, one setup would give me mating Domino mortises in all the parts. Once they were cut, the aprons could be dressed to final thickness by removing an equal amount of material from both faces.

My Domino XL leaves a 25mm wide mortise. That would have provided a lot of strength, but by machining two Domino mortises side-by-side, with their centres separated by 1/2", I could end up with an even stronger mortise, about 1-1/2" wide.

Next, I machined floating tenons that fit the mortises.



Cut the Joints – Brown opted to use his Domino cutter to machine wide mortises in both the legs and aprons. You can see the two small lines he used to align the machine on the workpiece to give him extra-wide mortises for added strength.



An Arc on Top – Brown used masking tape on a French curve to give him a repeatable curve to mark the tops of each leg. The curve terminates on the inner face of the leg at the same height as the future upper surface of the top.

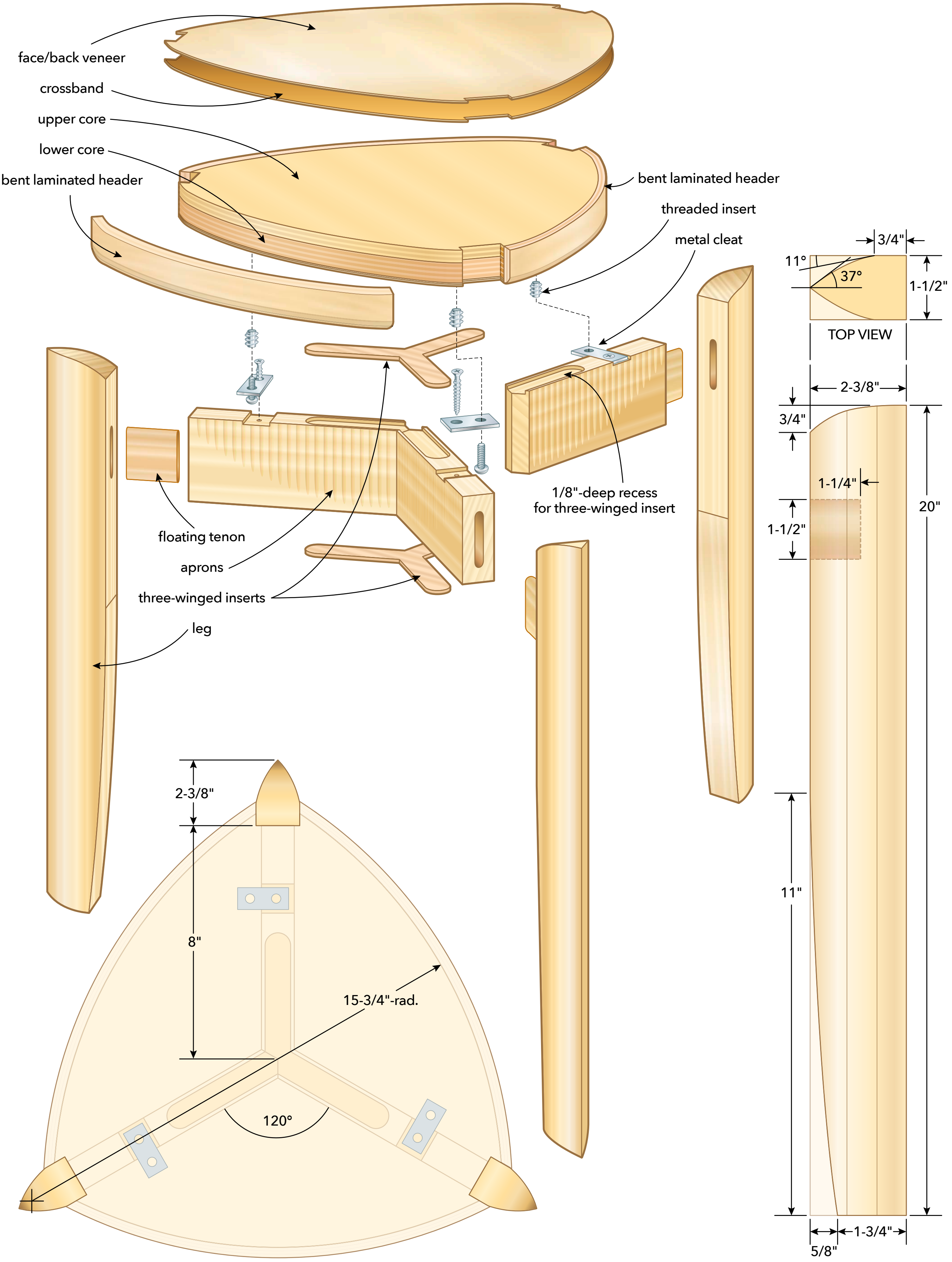
Shape the legs

The first step in shaping the legs is to cut the arcs on their tops. Use either a French curve or paper or cardstock to make a template, then cut the curves on the bandsaw and sand them smooth and even. The inner termination of this curve should be at the same height as the finished table surface, so some planning and some math is important now.

The outer two faces of the legs will get shaped with a gentle curve, but rather than do all this shaping freehand, use the table saw to remove as much material as possible. This will give you a head start on keeping the three legs the same.

Draw the shape of the two outer faces onto the end grain of one leg to act as a template for setting up the table saw cuts. Between angling the blade and adjusting the position of the rip fence, the vast majority of the waste can be removed.

I have a right-tilt table saw, so you may have to take a slightly different approach than I did to remove most of the waste, but either way it can still be done with the table saw. I set the angle of the first cut to about 37° and adjusted the rip fence to leave me with the pointed front end of each leg. The height of the blade was set so the blade didn't protrude out the side of the leg blank, giving me more material to reference off of for the next pair of cuts and making the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crossband
upper core
lower core
bent laminated header
bent laminated header
threaded insert
metal cleat
floating tenon
aprons
three-winged inserts
leg
1/8"-deep recess
for three-winged insert
2-3/8"
8"
15-3/4"-rad.
120°
3/4"
11°
37°
1-1/2"
2-3/8"
3/4"
1-1/4"
1-1/2"
20"
11"
5/8"
1-3/4"

TOP VIEW

TOP VIEW

LEG DETAILS

Materials List

Part	Qty	T	W	L	Material
Legs	3	1-1/2	2-3/8	20	Maple
Aprons	3	1-1/8	3	8	Maple
Floating Tenons	3	To	Fit	2-1/2	Hardwood
Three-Winged Insert	2	1/8	To	Fit	Plywood
Upper Core	1	1/2	15	15	Plywood
Lower Core	1	3/4	15	15	Plywood
Bent Laminated Headers	3	3/8	1-1/4 Headers made from three laminations 1/8" thick	Approx 16"	
Face / Back Veneer	2	1/32	17	17	Curly Sycamore / Maple Veneer
Crossbands	2	1/32	17	17	Black Cherry Veneer

Hardware List

Name	Qty	Size	Details	Supplier
Metal Cleats	3	3/4" × 1-3/4"		Misc
Threaded Inserts	3			Misc
Pan Head Bolts	3	To match threaded insert		Misc
Press-In Soft Bumpers	3	5mm Diameter	Product #00S2104	Lee Valley

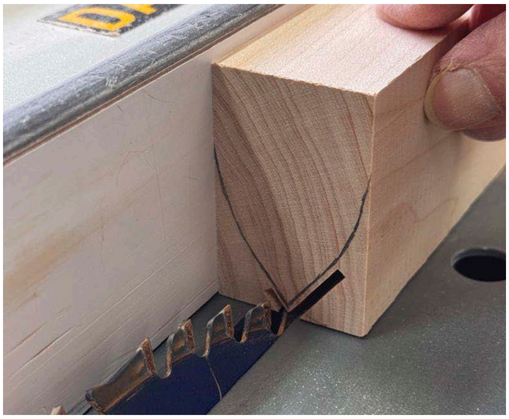
cuts easier. After making the first cut, I rotated the blank end-for-end and made the second cut to leave me with the pointed front corner of the leg. I also repeated this operation for all three legs.

For the next pair of cuts on each leg I adjusted the blade to about 11°, raised the height of the blade and adjusted the location of the rip fence so the cut would nearly remove the waste from the outer face of each leg blank. I say "nearly" because I set the blade height low enough that it didn't fully cut through the blank and remove the waste, so the second rip cut on each blank would have more material on its side to run against the rip fence. Leaving between 1/16" and 1/8" is good. When complete, a chisel, mallet and hand saw assisted in removing the waste from each leg blank.

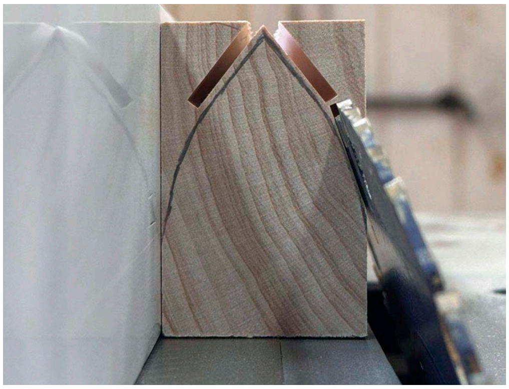
Taper the legs

When viewed from the side, the legs taper as they approach the bottom. Each taper starts 11" above the lower ends of each leg and tapers outward 5/8" at the bottom of each leg.

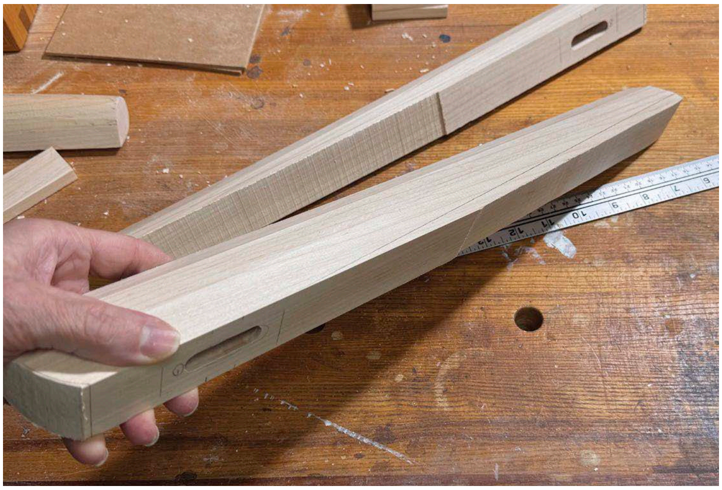
Mark the line with a pencil and straightedge, then cut it on the bandsaw.



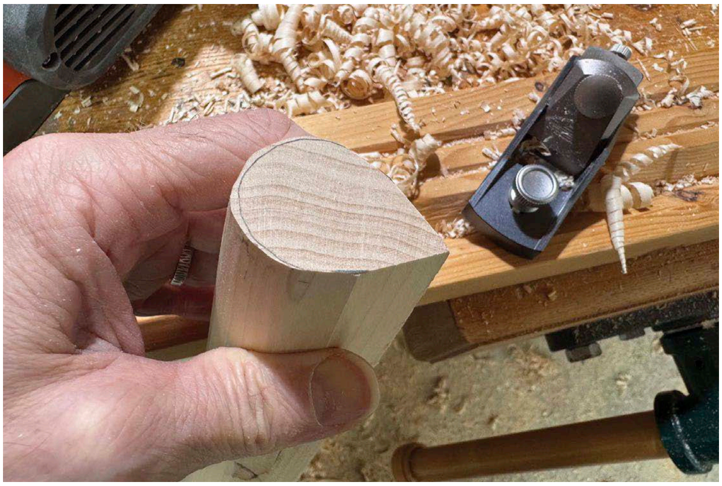
First Waste Cut – After marking the cross section of the leg on a leg blank, Brown adjusted the rip fence, blade angle and blade height to remove some of the waste. Notice he didn't cut deep enough to remove the entire side of the workpiece, as that material will assist with machining the other half of each leg.



Second Waste Cut – Flip the leg workpieces over, then re-adjust the rip fence, blade height and blade angle to remove more of the waste from the legs. Leaving a small amount of material between the two series of cuts will keep the waste in place and make the second rip cut easier. It also keeps the large piece of waste from falling down on the rip blade during the operation.

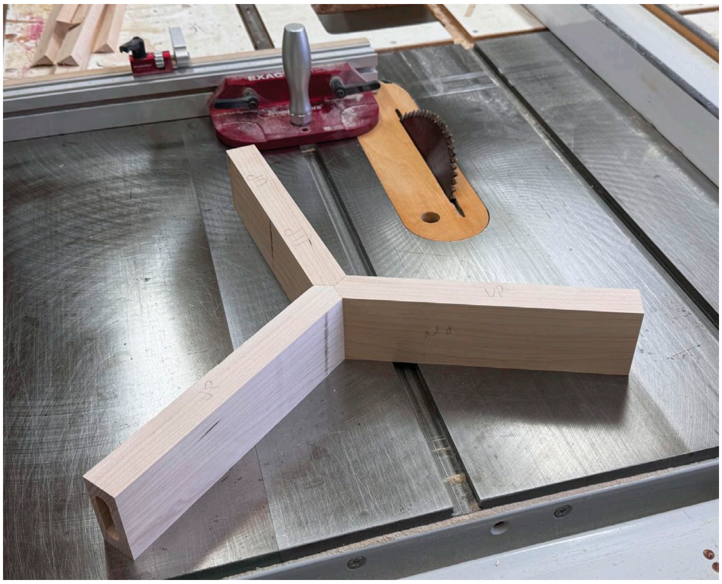


Shaping Lines – With the leg blanks tapered on the bandsaw, Brown adds a few layout marks to help guide him during the shaping process. Here, you can see a line parallel to the taper and about 3/8" away from it.



Shape to the Lines – The bottoms of the legs end in a teardrop cross section. The layout lines are critical in keeping the legs as similar as possible.

Range of Tools – Hand planes go a long way in shaping the leg, but spokeshaves and hand-held power planers can also play a role.



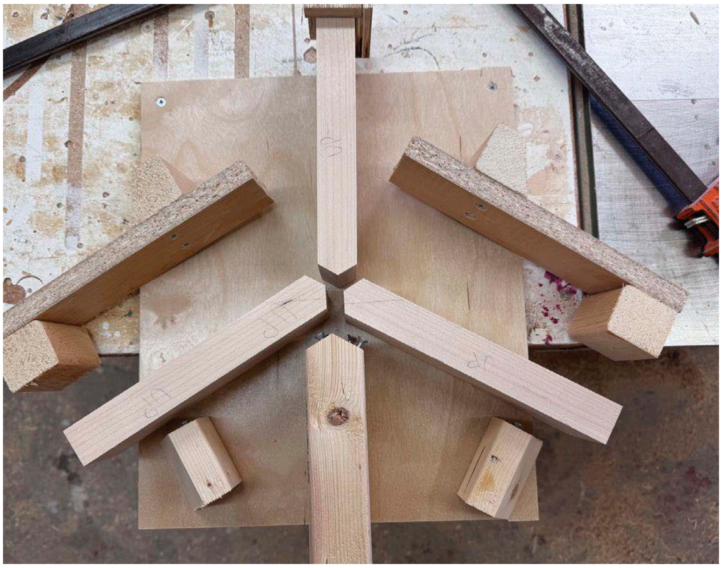
The Correct Angle – Test the 60° angle setup on the aprons, which are still longer than they'll finish. If there's even a slight gap between the mating surfaces, make an adjustment to the angle of the blade. A stop, which the morticed ends of the aprons butt up against, will keep these cuts even across all three aprons.

Further hand shaping

Layout lines on the legs will further help create three legs that are as similar as possible. A line on both sides of the legs, parallel to the rear taper, is a good start. Offset it by about 3/8".

The top, inner face of each leg is flat, but the foot of each leg ends in a teardrop shape. Mark that shape on the bottom of each leg.

A hand-held power planer will remove some of the waste but can also leave you with too little material to properly shape each leg, so proceed with caution. An assortment of hand planes and spokeshaves is likely the safest option. Use the main test leg, which was shaped more completely than the others, as a guide and refer to it when needed. I found it helpful to shape all three legs in stages; rough them all out with a power planer, use a jack plane to further shape the three legs, then use a block plane and spokeshave to refine the shape of the three legs.

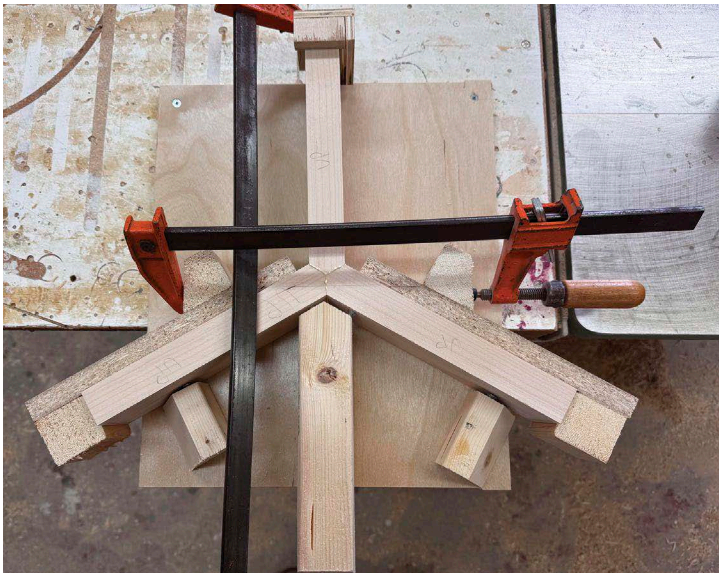


Make a Clamping Jig – Free-handing this glue-up isn't a good idea. Brown made a form, which consists of a plywood base, a long, angled support rail with a total of four screws in its end, and two smaller blocks with a screw in their face, to keep the parts at the correct angle during the glue-up. He also made two clamping hooks to help apply pressure directly in line and perpendicular to the glue joint between two of the aprons.

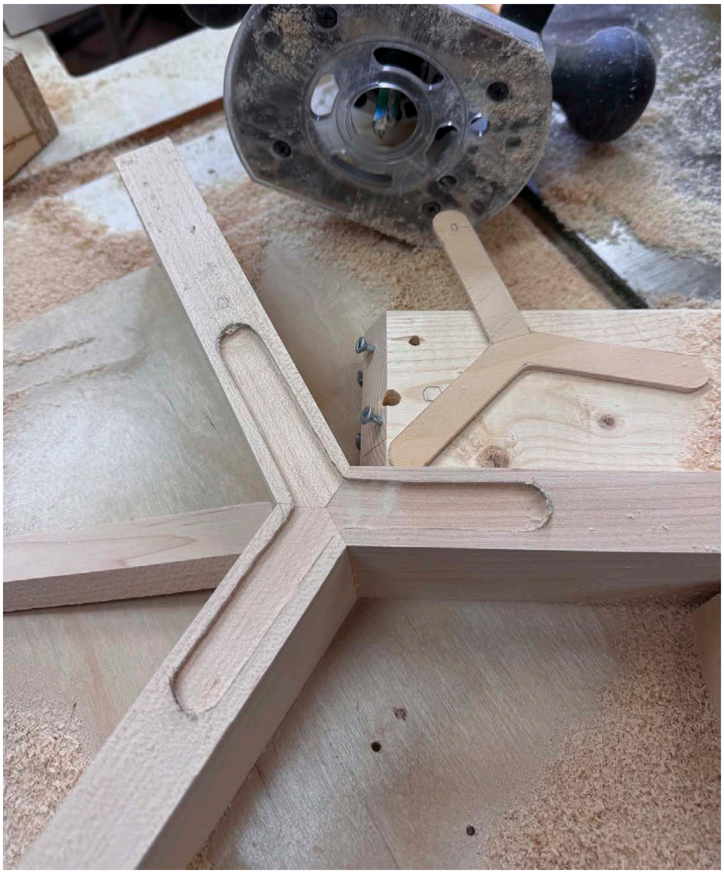
Back to the aprons

The leg-to-apron joint is complete, but the joint that fixes all three aprons together under the centre of the top isn't. First, ensure the aprons are dressed to proper thickness, making sure to remove equal amounts of material from both faces of each leg.

Cutting the aprons to length, and at the correct angle, is next.



In Action – The clamping jig keeps the parts aligned so they mate nicely in the centre of the table. Notice how Brown used a piece of scrap as a caul on one apron end (top of photo) so it wouldn't get damaged.



Three-Winged Strengtheners – Brown added two thin plywood pieces across both the bottom and top of the three-way apron joint. After tracing the shape of the strengthener on the apron assembly, he created the shallow mortices using a router freehand. Perfection isn't the goal here.

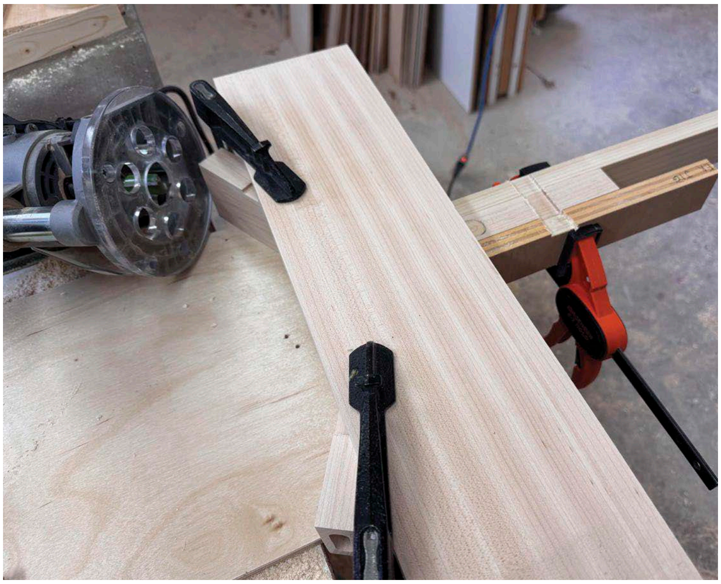
Tilt the table saw blade to 30°. To check the fit, set up a stop block that will leave you with aprons longer than needed, and trim all their ends with a pair of 30° angles. While the aprons are resting on their edge, line them up to make sure they fit nicely. If there are any gaps, some slight adjustments to the blade tilt angle will be needed, followed by adjusting the stop in a small amount and re-cutting the end of each apron. Once you're confident in the fit, adjust the crosscut stop locations to give you the right length and cut all the parts.

Glue up the aprons

This step is virtually impossible to accomplish accurately without a clamping jig of some sort. Keeping the top edges of each of the three aprons in the same plane, as well as keeping the aprons mating with each other at the centre joint comes together nicely, is important.

Although I'm sure there are other approaches, I decided to start with a flat piece of plywood about 18" square, and add some blocks to its face. I dressed a 10" long piece of 2×4 so it was straight and true, trimmed one end so it was cut with the same 60° angles as the aprons and attached it to the plywood. I then added a pair of screws to both 60° cut faces. These screws allowed me to fine tune the position and angle of the aprons that would come into contact with the jig during glue-up.

Next, I added two smaller blocks to the plywood, along with a screw into the face of each block that the aprons would rest against during glue-up. Like the screws in the first piece, these screws had to be adjusted so the first two aprons would come together with each other perfectly.



Hardware Notches – Brown clamped a straightedge to the apron assembly so he could use a router to machine a notch in each apron that accepted the metal hardware to attach the top to the base. Before machining, he added a piece of scrap to support the aprons where the router would exit the cut.

The only other parts needed to make this jig work are a mirrored pair of clamping hooks. Each hook has a longer main section, an angled clamping surface at one end and a cleat on the opposite end. When positioned over the end of an apron, a clamp will apply pressure to bring these parts together with the third apron.

A dry run is critical to ensure the jig and clamping hooks bring the three aprons together properly. Once you're confident, sand the inner faces of each apron and glue them together all at once, applying even pressure.

Strengthen the centre joint

To be honest, this step might not be needed, as each apron will be attached to the underside of the top, but I wanted to be sure the parts all remain together for a long time. This step was a lot easier than I anticipated and doesn't need to be super accurate to leave you with a strong centre joint.

I traced the three-winged shape onto a piece of plywood, offset the lines so the edges of the piece were about 3/16" inside the outer edge of each apron, and cut it to size. One piece is needed for both the top and bottom of the centre joint. After labelling the two parts, I traced them onto the top of the apron assembly and used a router to freehand the mortise to accept both pieces before gluing them in place. A gap here and there is perfectly fine. With some light sanding to flush it up afterwards, the apron was super strong.

While I was working on the apron assembly, I ran three shallow notches to accept the steel hardware pieces that would hold the top in place. Note the legs still haven't been glued to the apron assembly yet.

Texture

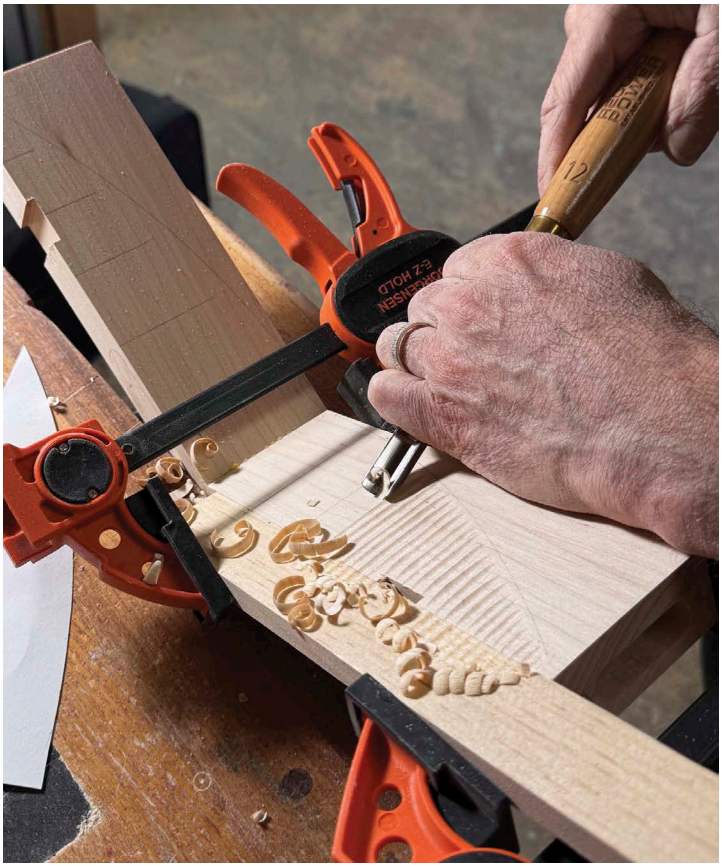
I'm a big fan of texture so I decided to add a series of tightly spaced carved grooves into the faces of the aprons. Rather than covering the entire apron faces, I opted to terminate the grooves at an arc between opposing corners of each apron. In hindsight, the texture isn't quite as visible as I had hoped and if I were to make another one of these tables, I'd probably do something different. There's also nothing wrong with keeping the faces of the aprons flat and smooth.

Top it all off

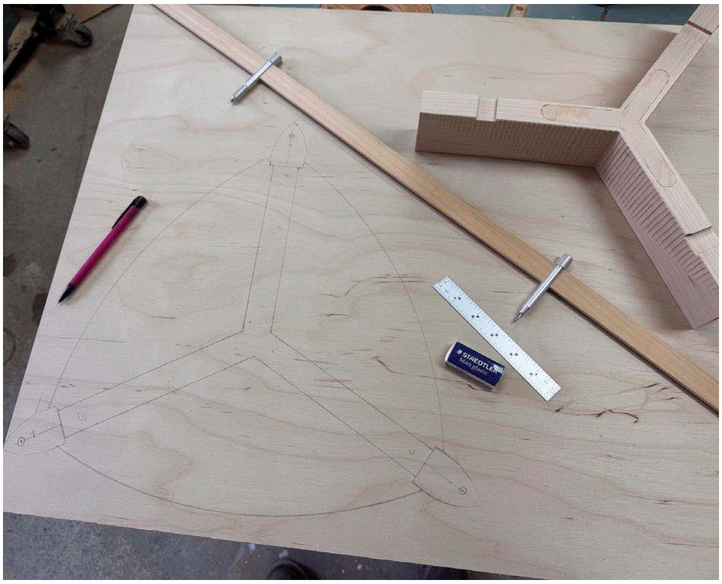
There are many approaches to creating a top for this table. Solid wood would work fine and is by far the easiest and quickest option. However, I wanted to use some curly English sycamore veneer I had tucked away for the top. This meant making a properly sized core with three curved edges, making a jig to form the bent laminated headers, gluing up the curved solid wood headers, adding those headers to the core, trimming them flush with the core, veneering the upper and lower surfaces of the top and fitting the top to the table so it notches around the three legs. Again, solid wood is the easiest option here.

Start with the core

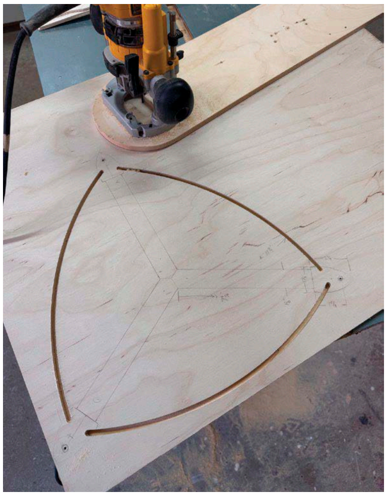
A full-sized drawing was the first step. Using the apron assembly as a guide, I laid out the locations of the legs and the angles of the aprons on a piece of 1/2" plywood. I then cut this to size with the



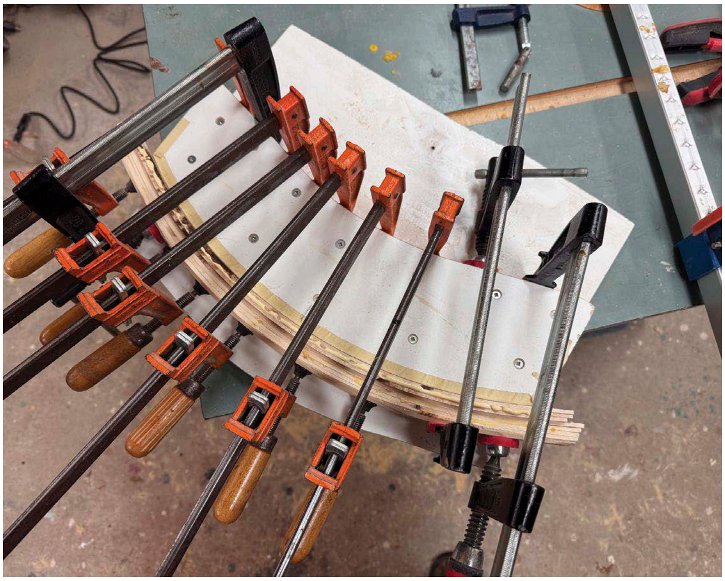
Textured Aprons – Although they turned out to be less visible than Brown anticipated, he carved a series of grooves into the aprons. You'll notice perpendicular pencil lines on the far apron to help keep the grooves somewhat straight.



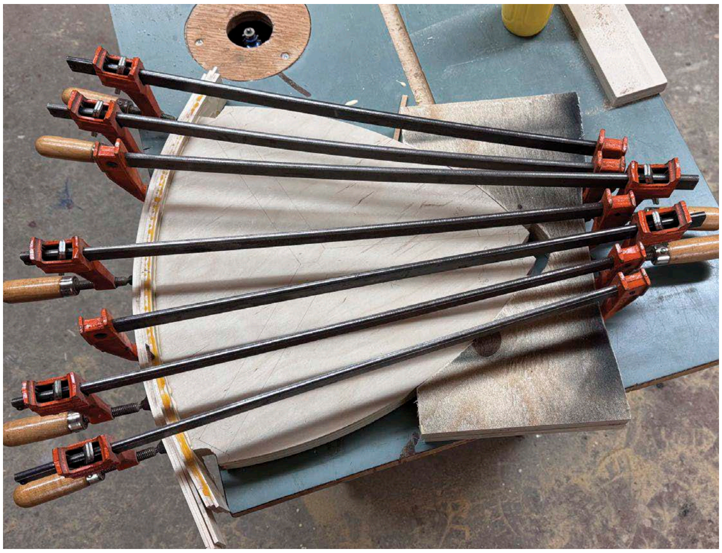
Full-Sized Drawing – A full-sized drawing simplifies the shape needed for the core. The bent laminated headers need to extend all the way to the legs.



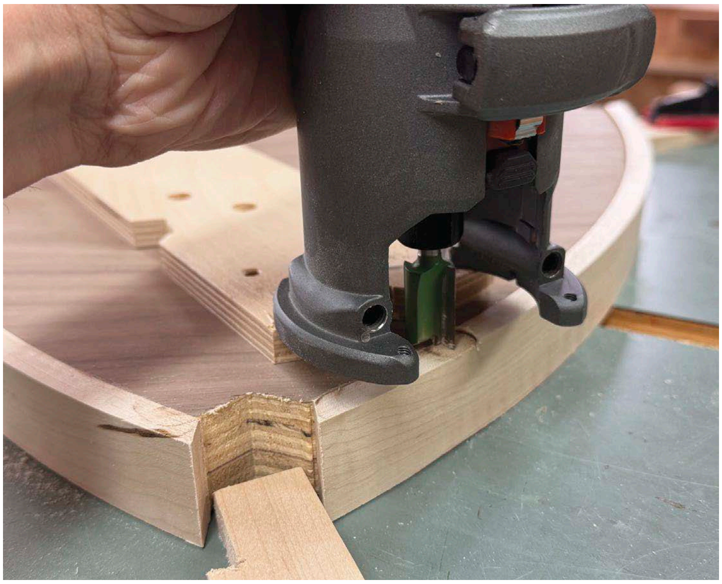
Cut the Core Out – Brown used his router and circle-cutting jig to create the three arcs that make up the core. You'll notice the screw marks where the circle-cutting jig was attached to the material around where each opposing leg will be positioned. This piece will act as the top 1/2" of the core, while another 3/4" piece of plywood will be adhered to the underside of this piece and flush trimmed to produce the 1-1/4" thick core.



Bent Lamination Form – Brown glued up the bent laminations on a form. He also made a bent laminated caul to help glue these laminations up. That curved caul can also be used to help glue the bent laminations to the core.

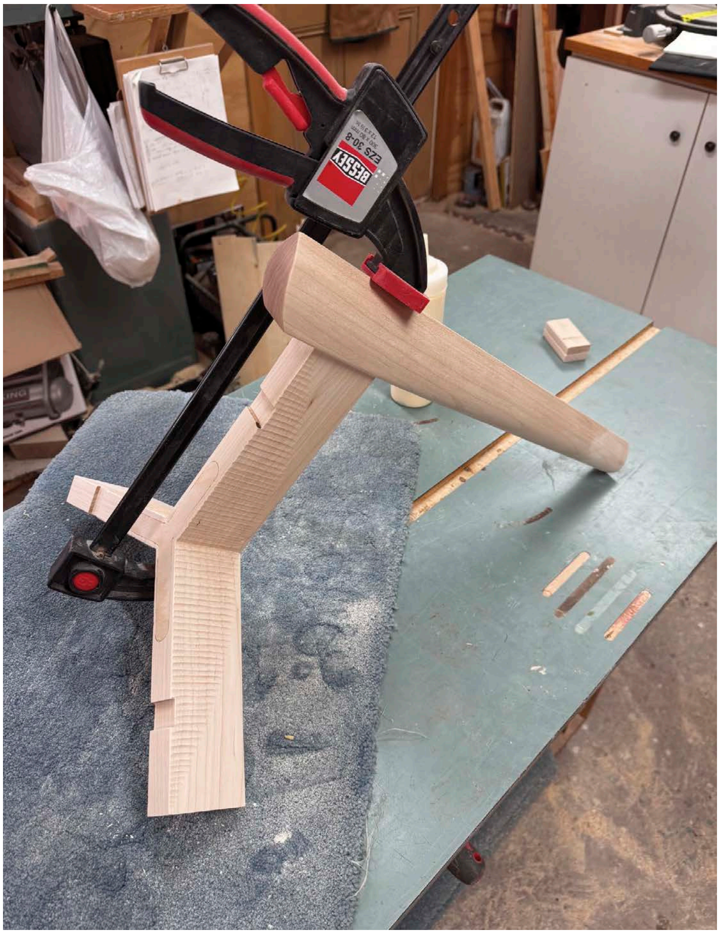


Dedicated Clamping Caul – A caul that will fit over the distant end of the core while gluing on each bent lamination is needed. It will need to be adjusted slightly after each glue-up, as the geometry changes slightly once each bent lamination is adhered to the core.



Flush It Up – The headers can be flushed up with a router, straight bit and a simple jig.

help of a router, straight bit and a circle cutting jig. Next, I laminated a piece of 3/4" plywood to the 1/2" piece and flush trimmed it with a router.



Attach the Legs – Attach the legs one at a time to the apron assembly. Only a small amount of pressure is needed. After gluing the legs in place, and once the top was ready to be fit to the legs and base, it was obvious Brown should have waited until after the top was shaped to glue the legs in place.

Bent laminated headers

With the core complete, I needed to cover the exposed plywood edges. Because I was going to heavily ease the underside of the table, I needed to apply edges thick enough so the plywood edges wouldn't show through after routing a round over to the lower edge of the top. I made a form with a radius of 15-3/4" to create a three-ply bent laminated header for each curved top edge. When machining the laminations to thickness, I was paying attention to how flexible they were. Thicker laminations spring back more when they come out of the form, but thinner laminations can reveal glue lines in the finished table. For the maple I was working with, I found 1/8" was a happy medium.

When the three bent laminations were dry, I attached them to the curved edge of the core one at a time. A router, equipped with a straight bit, was attached to a simple jig to flush the upper and lower edges of the headers to both faces of the top. Some sanding ensured the joints were all perfectly flush, otherwise they would telegraph through the veneer.

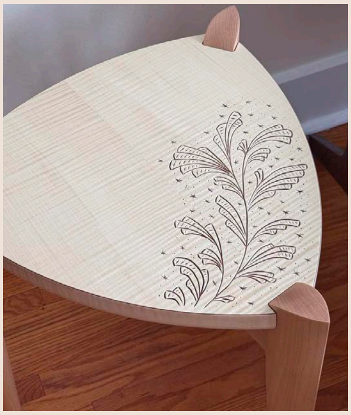
Veneer the top

At this stage it was time to add the crossbands as well as the face and back veneers. The crossbands run perpendicular to the face and back veneers and help hide the joints between the headers and core. I used my vacuum bag for this, though a caul slightly larger than the core, as well as a bunch of clamps, would also work. I used contrasting crossbands as I liked the pinstripe left by black cherry between the lighter headers and face veneer.

Fit the top

This was likely the most time-consuming part of this build. I made the mistake of gluing the legs onto the apron assembly before fitting the top. Doing otherwise would have allowed me to fit the top to one leg, then sneak up on the fit of the second corner, followed by fitting the third corner. I had to take them all into account at the same time.

Carved top surface



Although this step is obviously optional, if you have a sharp V-gouge, some patience and a bit of imagination, a carved top adds an incredible touch to this table. In my opinion, the carving on the table brings it from a nice side table to something that is unique and one-of-a-kind. With the carving, it's a conversation piece, not just a table.

Design options

The design on this table was inspired by frost. I made it in the winter. In fact, I might end up making a different top for each season, and rotate through them as the seasons change. That's the long-term goal, anyways, and talk is cheap right now. I prefer a design that's inspired by nature, though a geometric design would also work nicely. I like taking a simple shape or pattern from the natural world and bringing it inside. It's often a shape or pattern that's fairly small and detailed, as opposed to something like a mountain scene, but everyone is different.

Making it happen

After sanding the tabletop, I drew the design on a piece of blank paper and transferred the design to the tabletop with carbon paper. Drawing the design first, and transferring at least the general overall shape and size of the design to the workpiece ensures you reduce mistakes and get the proportions correct.

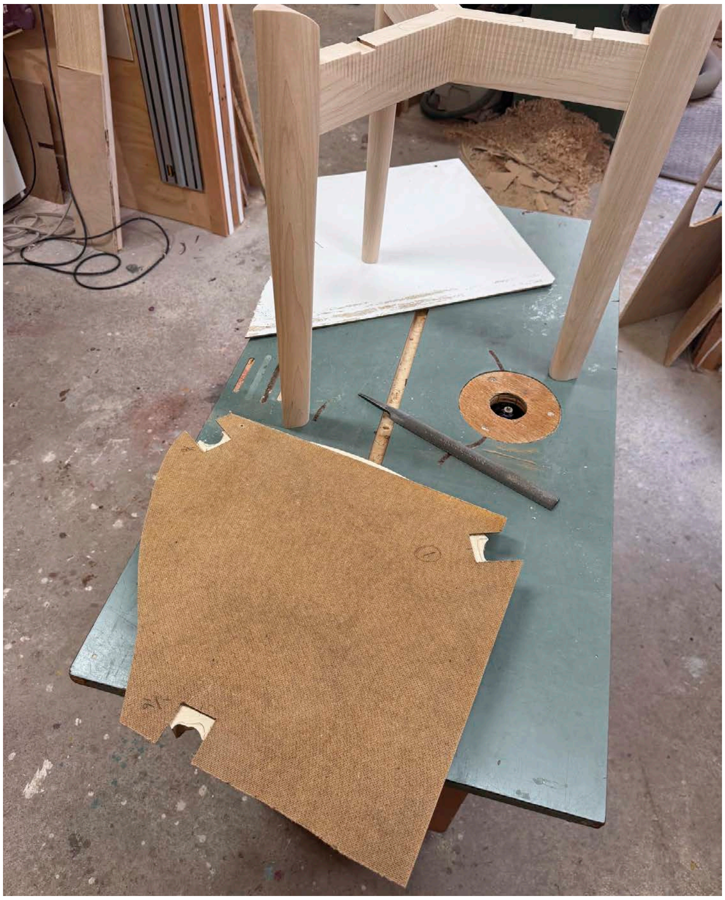
Before you start carving the workpiece you've worked so hard to create, it's a good idea to practice on some scrap. Ruining your workpiece is frustrating, time consuming and expensive. Using the same species of scrap wood is important, as different species react in different ways.

I used a sharp V-gouge to carve through the top veneer and expose some of the darker black cherry crossband. Using carving tools that aren't sharp is a recipe for disaster on many levels. I tried to keep the depth of the grooves about the same so the look would be somewhat uniform. I started off carving the main outer grooves, then went back and added more detail later.

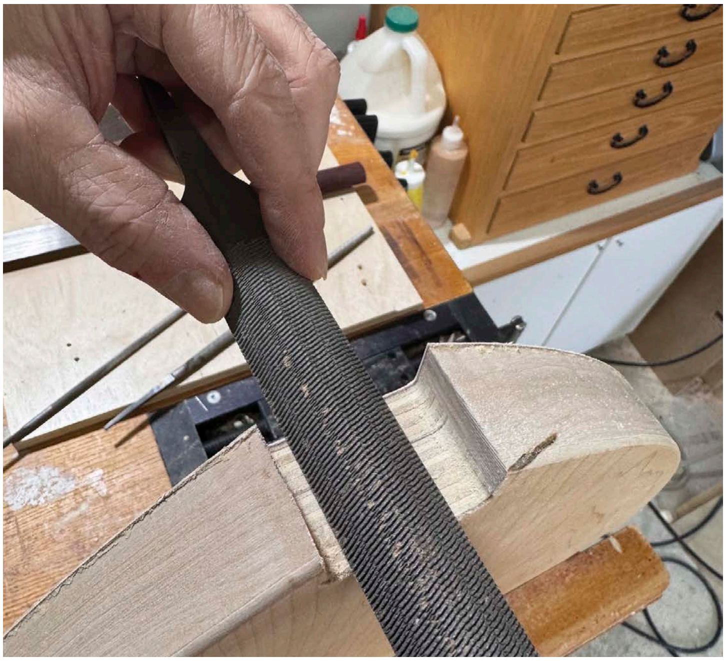
Once the carving was complete, it was time to fill in some of the empty areas with the smaller details. I used the V-gouge to create a lot of small star-like shapes. Each of these shapes has only three grooves that meet in the middle, creating the very simple star effect. Finally, I used an awl to add a bunch of dimples between the grooves and the stars to help further complete the design. None of these steps have to be perfect, as a bit of variation can be very pleasing to the eye.

Patience, coupled with some rest breaks, will go a long way to allowing you to get the best results possible.

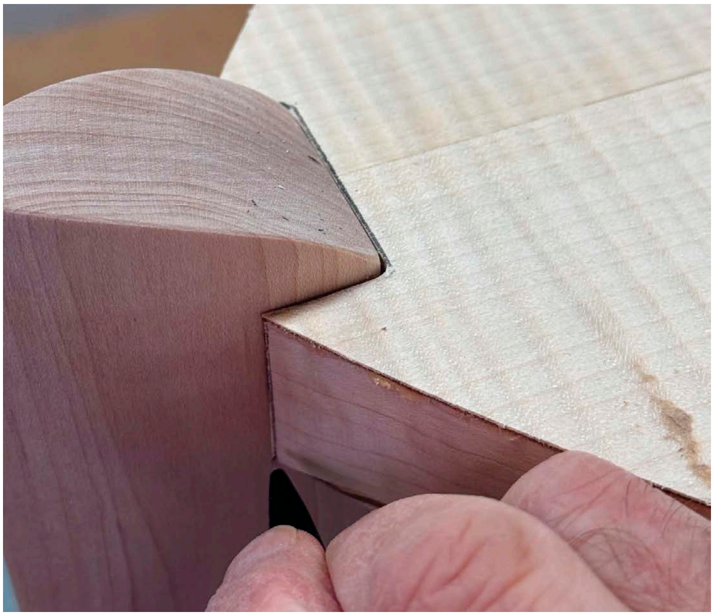
The fit was mostly dialed in by making a Masonite template that included notches to fit around the upper portions of the legs. This allowed me to trace the location of the legs onto the top, then bandsaw most of the waste away. From there, a selection of rasps, files and chisels allowed me to get the right fit. I finished with an even gap of about 1/32" between the legs and the core. There would be nothing wrong with increasing this gap to 1/8" or more. The most important thing is that the gap be even around each of the three legs.



Time for a Template – Brown found it easiest to create a thin template to place on the top and help him find the exact location of the legs, so the three notches in the top could be machined. Brown considered temporarily fixing the template to the top and using a template router bit to shape the three notches, but the shape of the notches in the template wasn't quite precise enough. He ended up using a bandsaw to get very close and rasps and files to fine tune the fit.



No Chipping – Working downward, so the face veneer wouldn't chip, Brown slowly snuck up on a good fit.



An Even Gap – The exact width of the gap between the legs and the top isn't as important as making sure it's even.

Finishing touches

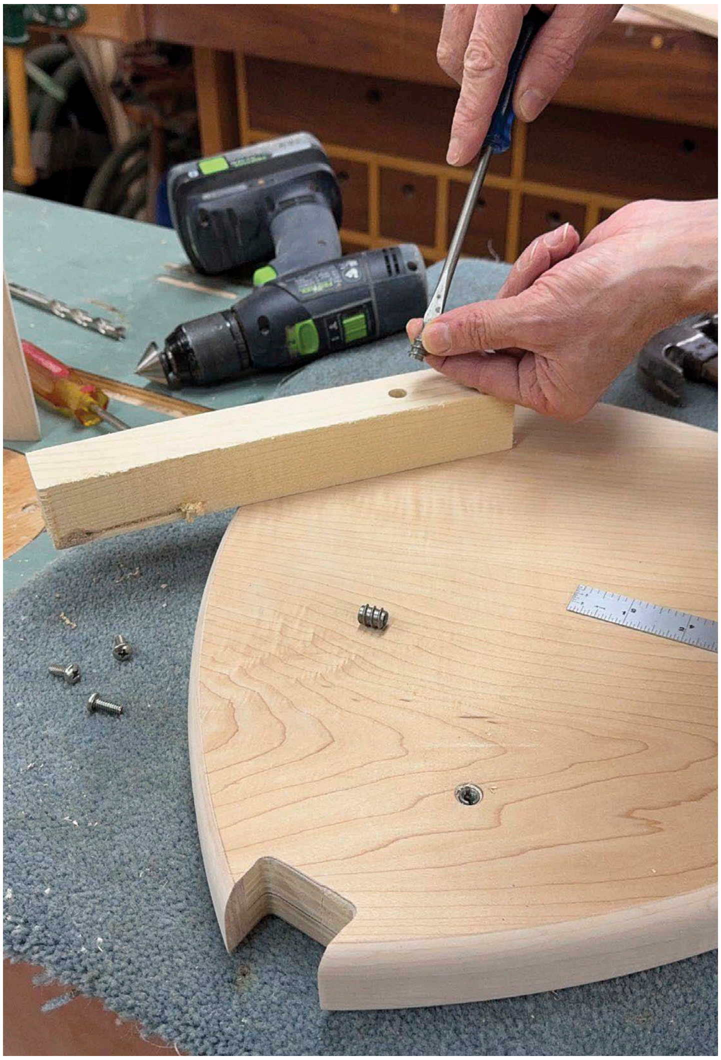
The lower edges of the top can now be rounded over with a 1/2" radius router bit.

Cut and install the 3/4" wide × 1-3/4" long steel plates in the upper edge of the three aprons. Place the top on the base and mark where the threaded inserts need to be installed in the underside of the top. There's nothing wrong with simply screwing the top to the base, but I've got half a mind to make a few different tops for this table, changing them as we rotate through the four seasons. Threaded inserts will last longer and be the easiest in the long term. Time will tell if I ever make another top, let alone three. The design carved into the top of this table is the winter design.

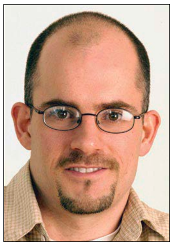
Once the piece was sanded and all the edges eased, I applied three coats of polyurethane, sanding between coats. This strong finish will stand up to any abuse that's thrown at it.

Finally, I drilled 5mm holes in the underside of each leg and installed a small rubber bumper in each hole.

I brought the table home and encouraged my wife to test it out. Perfect fit! After a week I hit it with some paste wax and #0000 steel wool, which refined the feel of the finish.



Keep Them Straight – When screwing the threaded inserts into the pre-drilled holes in the underside of the top, Brown used a simple jig to keep the inserts straight. A hole the exact same diameter as the inserts was drilled into a piece of scrap, and with the hole in the scrap directly above the pre-drilled hole in the top, the inserts were screwed into place.



ROB BROWN
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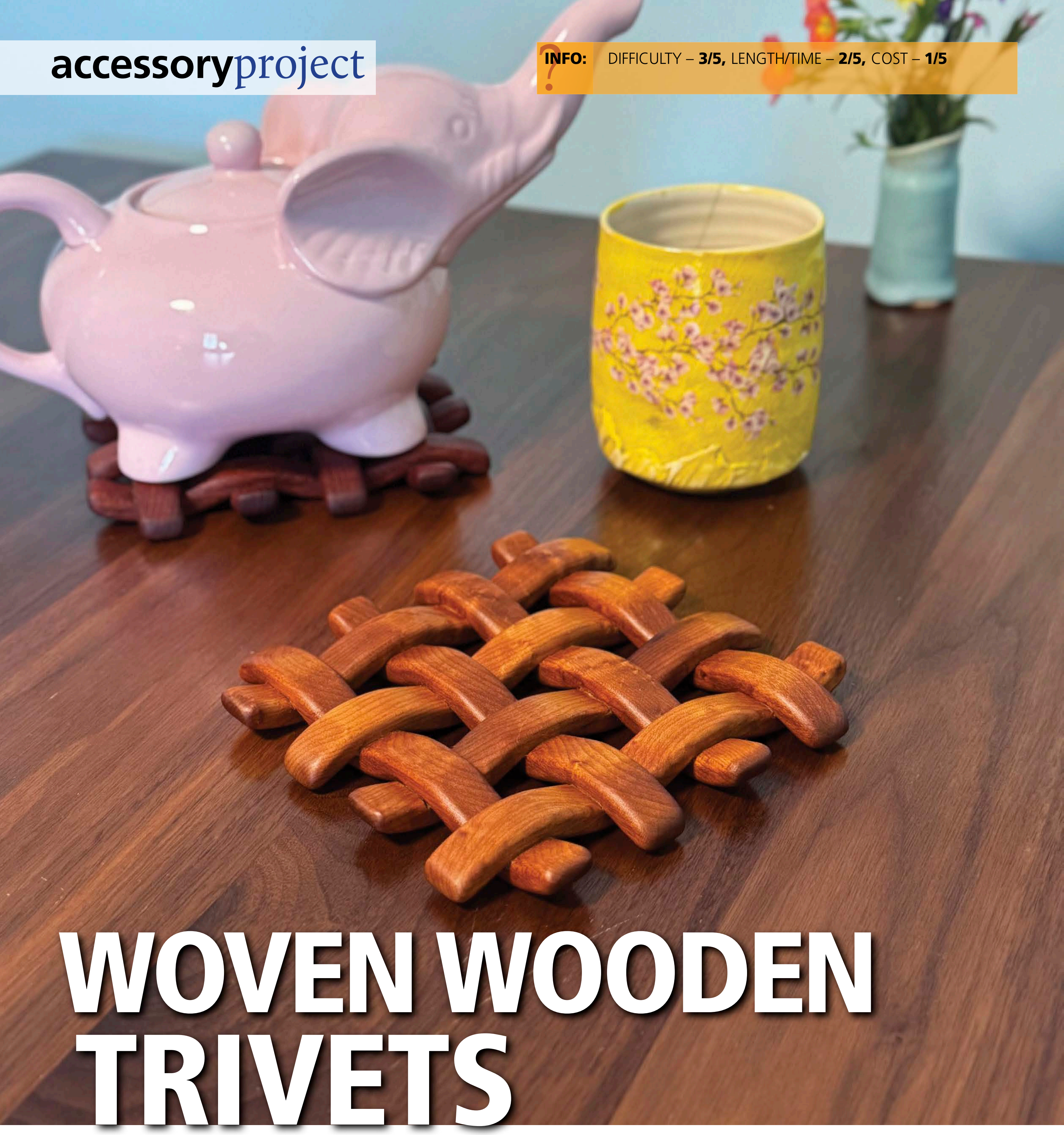


WOVEN WOODEN TRIVETS

Although this cool little project can be fiddly to make, it shows off wood beautifully. Your friends and family will be stumped, wondering how you wove wood together!

Photos by Stephen Gabe
Intro photo by Rob Wood

BY STEPHEN GABE

Weaving pieces of wood together isn't as easy as weaving yarn — it's surprisingly fiddly to do — but this project is a lovely way to show off wood in an unusual way.

There's a level of accuracy needed to create a nicely fitting trivet that looks clean and tidy. Don't think you can breeze through this project without considering accuracy, as that will only cause problems during assembly.

How did you weave wood?

You can make trivets out of the same wood for all eight pieces or choose different types of woods to weave. Two contrasting woods make a lovely design, too. Maybe one day I'll make one with eight different types of wood.

The trivets I made are 5-5/8" square. You'll need eight strips of wood, 5/8" × 5/8" and 5-5/8" long. You could use a table saw to cut pieces 5/8" × 5/8" (about 4' total length is needed). Another approach is to thickness plane a shorter piece of wood to 5/8" thick that you can later cut into the eight 5-5/8" long pieces. I've used both approaches but tended to settle on cutting 5/8" × 5/8" lengths on my table saw. We all have scraps of lovely wood we can use this way. I've used a dedicated push jig to keep the individual strips of wood down on the table saw's surface and pressed into the fence during machining, which makes the operation safer and more accurate.

When planning the number of pieces you'll need there's no harm to make an extra one, just in case of an issue occurring later on.

Accurate notches

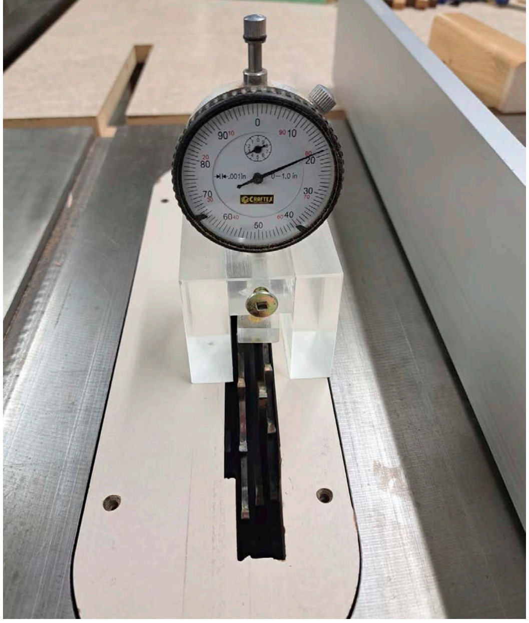
Start by cutting the interlocking notches. The sloping bevels between the notches will follow. This works well on a table saw with a dado blade. Install a 5/8" wide dado blade to be raised up 5/16" above the tabletop. If the depth is below 5/16" the pieces will be very difficult to assemble later. If your dado is a hair above 5/16" that's good…but just a hair!

There is a very handy tool to accurately measure the height of a cut that my dad, Eric Gabe, described in the June/July 2009 issue of *Canadian Woodworking Magazine & Home Improvement*. Use it to set the dado a hair above 0.3125" (5/16").

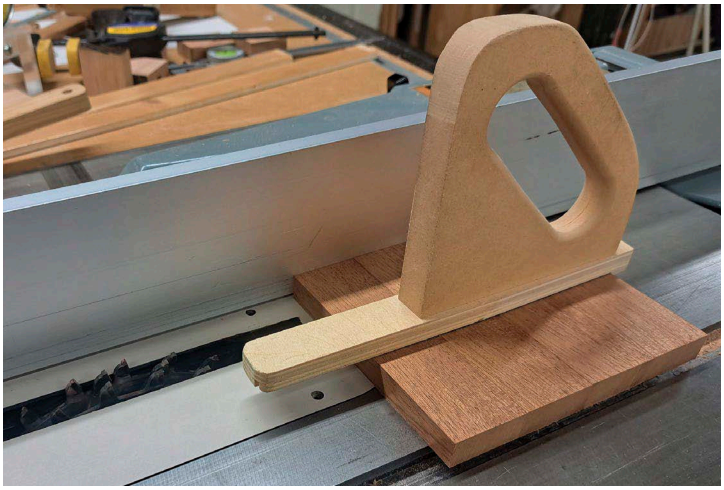
You will now make four dado cuts that must alternate, side to side, when completed. Set the fence to be 5/8" away from the closest edge of the dado stack. Make the cut for all the pieces at once. Using a push jig helps keep the pieces square and firmly against the tabletop and fence during the cut. Now, flip the pieces over lengthwise and repeat the cut, finishing with one notch towards one end of the first face and another notch towards the opposite edge of the second face.

Next, set the fence to 3-1/8" to the dado's edge and repeat the process to make two more alternating cuts, one on each side. Now you'll have four alternating notches 5/8" from each other.

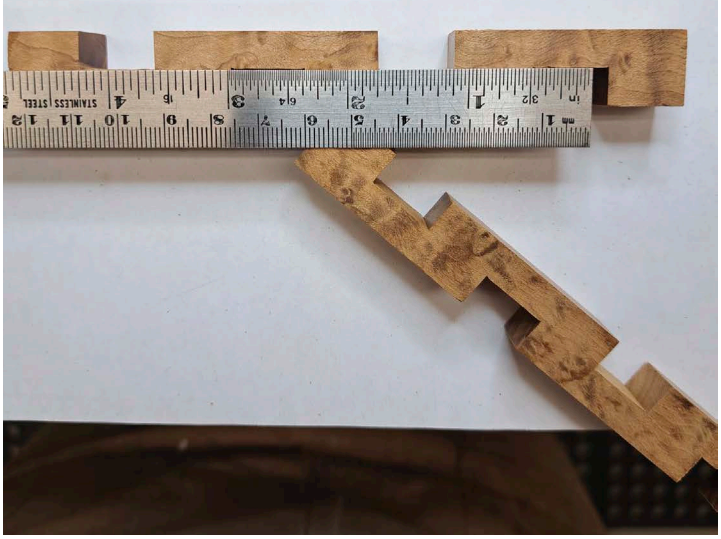
Double check that the bottom of the notches all align by laying a ruler across them. The two notches on one side should be just a hair deeper than the two on the other side. If the notch depths don't overlap by a hair, then the dado needs to be adjusted, and the cutting process repeated. Notches that are not deep enough cause assembly grief later, as I quickly learned.



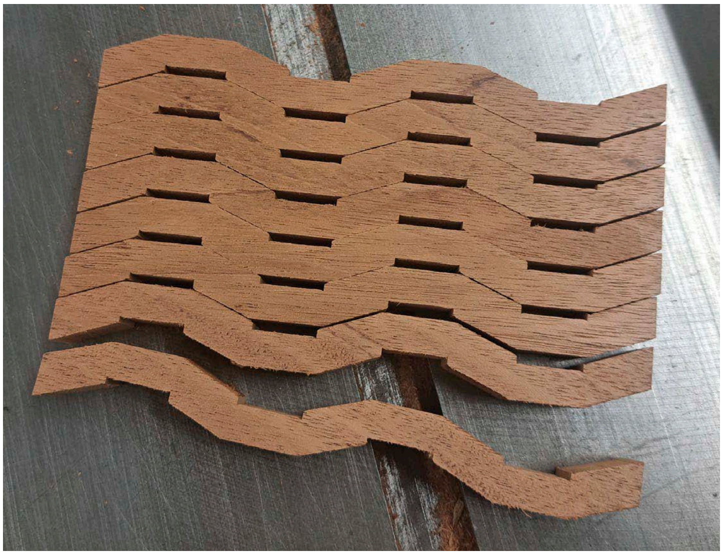
Accuracy Counts – This jig, described by Stephen Gabe's dad, Eric, in a past issue of *Canadian Woodworking & Home Improvement*, helps dial in the depth of the notches accurately.



Dedicated Jig – This is the jig Gabe uses to machine the cross-grain notches in the 5/8" wide × 5/8" thick × 5-5/8" long workpieces. The block of wood keeps the jig and workpiece square to the rip fence, while the plywood protrusion at the front keeps the workpiece down during machining.



The Ruler Check – A ruler laid across the bottom surface of the notches will show you if the notches are deep enough. Having the notches even 1/64" too shallow means they will be hard, or even impossible, to assemble.



Notched and Angled – Once the notches are machined, angle the dado blade and machine the angles between the notches, creating a workpiece more resembling a double "S" bend.

Add angled cuts

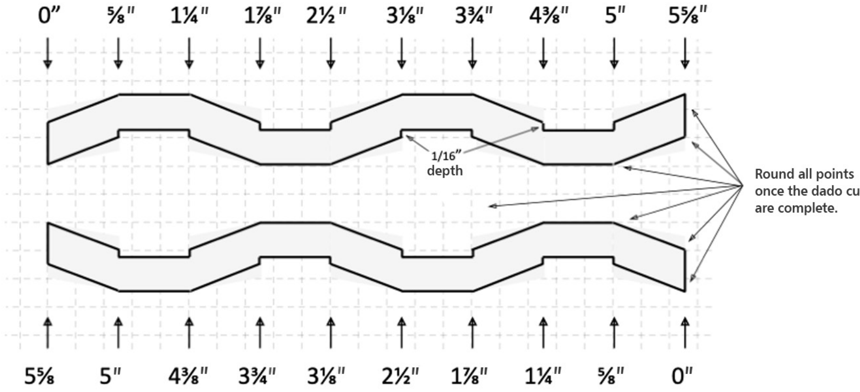
Increase the dado stack width to 3/4" and set it at an angle of 21.8°, with the lowest point of the dado closest to the fence, aligning with the saw's tabletop. I have a right-tilt table saw, which means I can keep the fence in its typical position, to the right of the blade. If you have a left-tilt table saw you'll have to move the fence to the left side of the blade. This is the 0" starting point for the fence settings, listed shortly. The top of the dado will reach slightly into the cut notches.

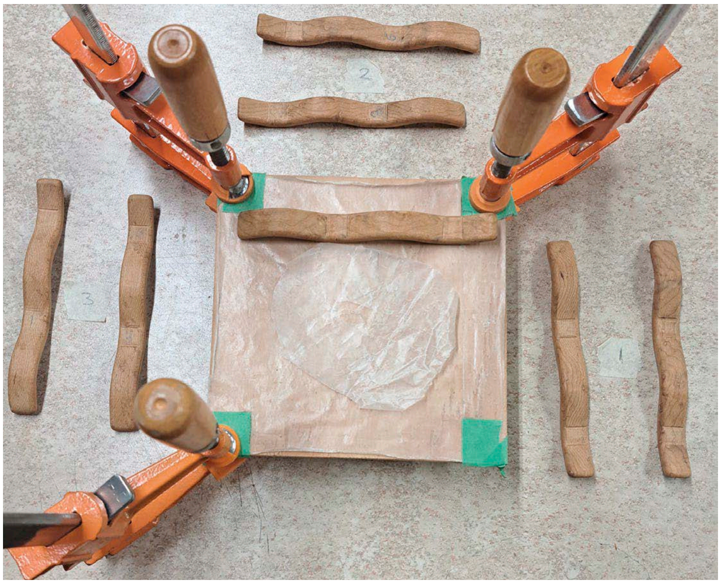
Rounded Edges – Once the workpieces have been sanded to a smooth curve, add a small round over to their edges on a router table. Be careful not to round over the notches.

Graceful Curves – The lower workpiece is fresh off the table saw, while the upper workpiece has the angles faired and its ends rounded.

Split in Two – A knife blade will help you split the final piece of the puzzle into two halves. This step can be tricky, as the grain may cause the split to extend through the workpiece. Having a few extra workpieces on hand can save the day.

You will be completing 10 passes over the bevelled dado with the fence set at five different multiples of 1-1/4" from the fence to the lowest point of the dado. The five required settings are 0", 1-1/4", 2-1/2", 3-3/4" and 5". Do the 2-1/2" setting first and then work your way outwards. You will do two passes per setting, flipping the pieces lengthways between each cut. Set the fence to one of its locations, align the pieces so the high point of the dado is cutting into the corner of a notch (or beyond the ends for the 5" fence setting). Double check to ensure the cuts are happening the right way to make a piece that will be shaped into a gentle double "S" curve.





Starting Point – A dry assembly will help ensure the trivet can be assembled. Starting with one piece laid on the plywood gluing surface, add the two pieces on the right, followed by the two pieces at the top. All of these pieces just fit on top of the others that are on the plywood panel. The final two pieces (at left) get woven into the assembly.

The diagram is handy to refer to when setting up the cuts.

Once complete, the notches are about 1/16" deep.

If you used a wider piece of wood, for the dado cuts, then now rip the 5/8" pieces from the blank.

Rounded edges

Sand the points on the other side of each notch to round them into curves. Try not to reduce the tops of each curve in your sanding. Round the ends of each piece a little, too, so they have ~1/8" radius curves on them. Just make sure to not sand the notches.

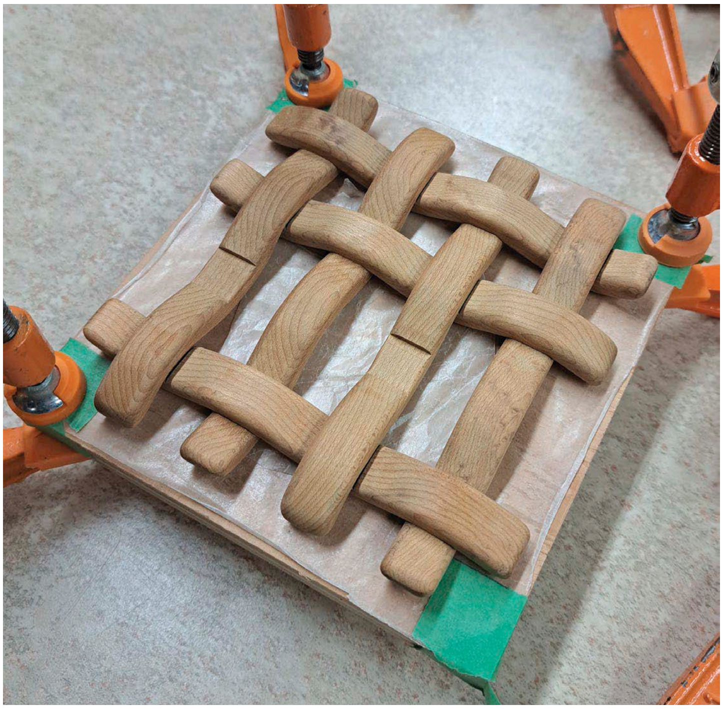
Once all pieces are shaped, use a 1/8" round over router bit, mounted in a router table, to round all the edges of each piece. Again, ensure you don't round over the notches, as they should remain square. Keep your pieces moving when routing them to avoid burn marks as much as possible. After all edges are rounded (except notches), sand them well to a finish-ready quality. This sanding takes time but it's much easier to do this before assembly than after, though you still might need to do some sanding after.

Time for a break

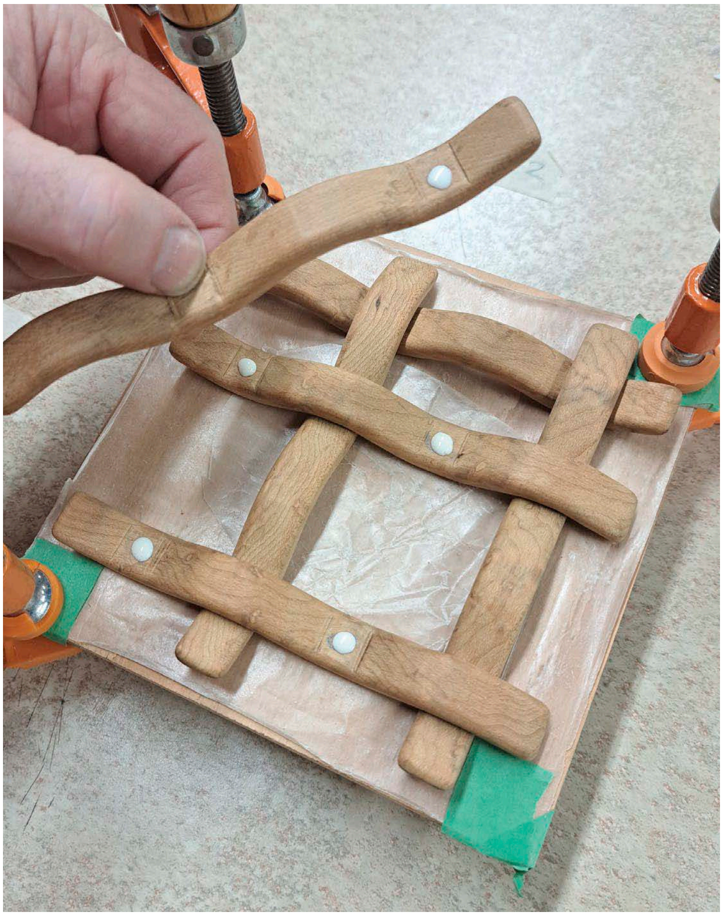
To assemble the trivet, you will first need to cut one of the pieces into two halves. This step is what allows this woven trivet to actually fit together. The piece should be separated in between the middle two notches. The cut will be re-glued, so you don't want to saw it in two and lose some wood to a kerf. Use a snap-blade utility knife or utility razor blade and a small hammer to cut the wood in two from one notch to the other. It doesn't matter if there is a little unevenness or small tear in the cut surfaces since they will be glued back together later.

Assembly – Phase 1

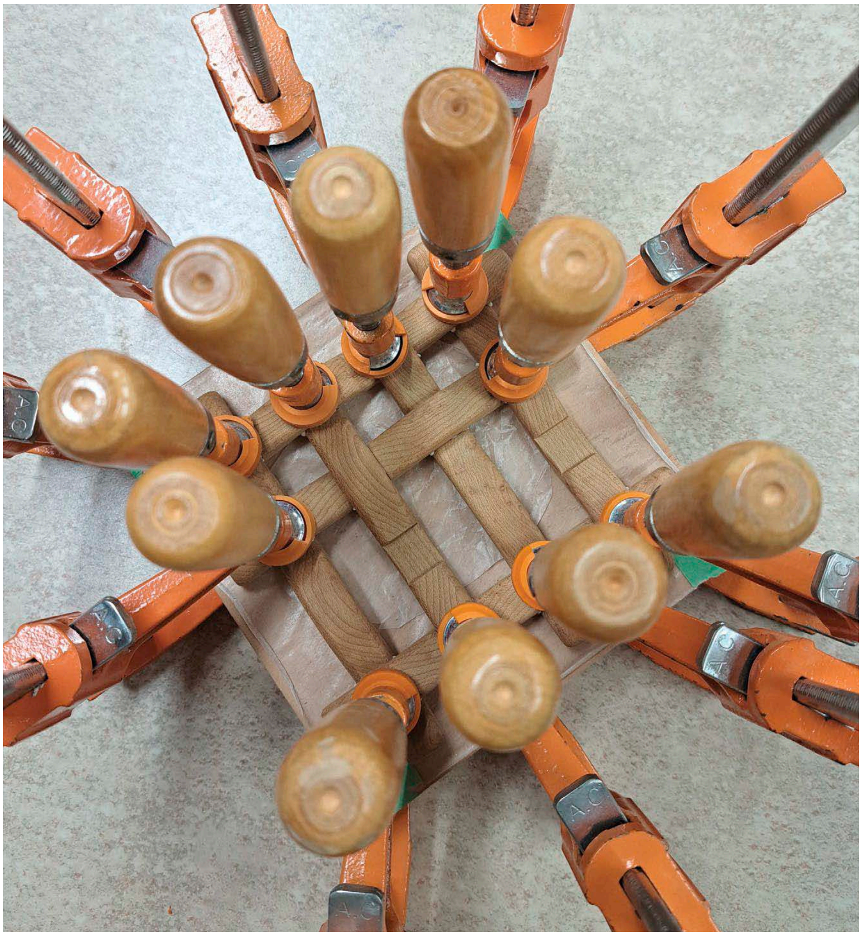
Dry assemble your trivet to ensure it all fits together snuggly and lies flat. A little pressure (not a lot) may be needed to get the



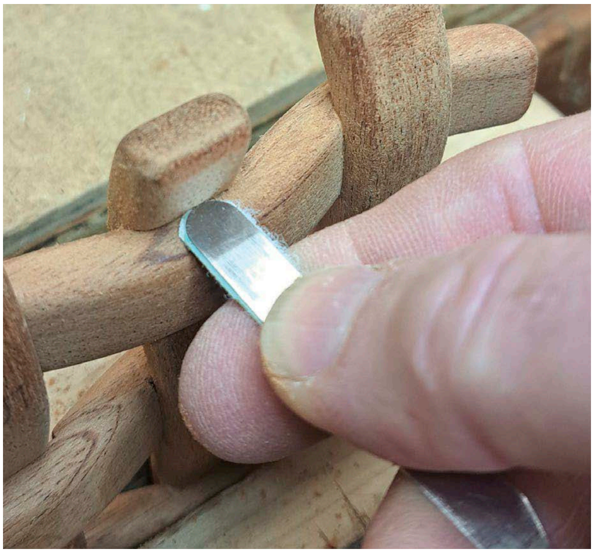
Dry Run Complete – Now that you know how the first phase of the assembly should go together, carefully disassemble the trivet and get ready to add glue to the notches.



A Drop Will Do – Gluing the notches is an important step, but just be sure to not add too much glue. Excess glue will make prepping for a finish tedious and difficult. These drops might even be on the large side.



Phase 1 Complete – Clamps on the joints will bring the parts together for good. Heavy pressure shouldn't be needed.



Get In There – An assortment of hand tools will help you get into the corners and remove any glue squeeze-out. Here some sandpaper is two-sided taped to a small tool. As they say, an ounce of prevention is worth a pound of cure.

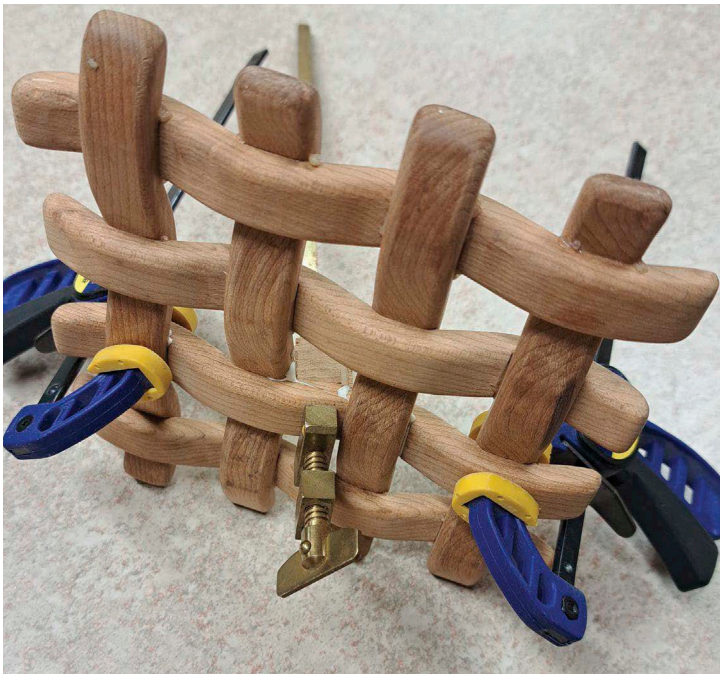
notches to snap together. If notches aren't quite wide enough, sand or file them a bit wider, but don't overdo this or you'll have gaps showing in your trivet. Also, ensure the two cut pieces assemble back together well in the trivet. If the trivet won't assemble flat, then the notches may need to be deepened slightly. The surface of each notch should be snug against each other to ensure they will glue together well. You can also test assemble with clamps, if you wish.

Cut a 6" × 6" square piece of 3/4" thick scrap plywood. This will be the flat gluing surface needed to end up with a flat trivet. Three clamps, in three corners of the plywood square, can initially act as table legs for the square.

Gluing the trivet is a bit fiddly and is done in two phases. In phase 1, assemble all seven full-length pieces, leaving one middle row empty for later assembly with the cut pieces. Assembly will be done in a specific order that's hard to describe with words. A photo included in this article shows the order. With one piece on the clamping board, two others get added perpendicular to this initial piece. These two pieces simply get placed on top of the initial piece. Next, two more pieces get placed onto the assembly parallel to the initial piece. Again, these two pieces just need to be placed on top of two of the other pieces already in place. Finally, two more pieces get added to the assembly perpendicular to the initial piece. These last two pieces will need to be placed underneath the existing pieces. Practice this before applying glue.

Once you've practiced this, and are confident in the process, put a small amount of glue on all notches, except the ones needed for the cut piece assembly, to be done later. To keep things straight, it might even be a good idea to add a small piece of masking tape over the notches that don't get glued in this first setup.

It's important not to add too much glue to the notches, as dried, squeezed-out glue is tedious to remove later. One small drop of glue per notch is enough. Carefully assemble the trivet, in the order you practiced, trying to let just the glued notches



Phase 2 – Once the first phase is dry, you can add a small amount of glue to the notches on the split piece, as well as the cut joint, then position the two halves in place. Adding a bit of clamping pressure will seal all the joints for good. A small clamp can be helpful for clamping the cut joint. A bit too much glue was used in this specific assembly.

touch one another. Once it's all together, start clamping the trivet overlaps to the piece of plywood. Ten or 12 clamps can be used, though you might not be able to reach the middle two overlaps. You can reuse your three corner clamps once a few more are added. With all those clamps in place, it's not really possible to wipe off any glue squeeze-out.

Assembly – Phase 2

Once Phase 1 has dried, gluing in the cut halves is next. Apply glue to all the notches and the cut surfaces, too. Clamp the outer two trivet overlapping pieces and the overlapping cut section. You may not need to clamp the inner two overlaps once the cut section is clamped together. You may be able to wipe off any excess glue in this gluing phase.

After the glue is dry, unclamp the trivet and check for any excess dried glue. Use a sharp chisel to carefully cut off dry glue. Be careful not to scratch the wood as you do this. Some sanding will likely be needed, too. I find if you don't clean the trivet in an organized manner then you'll miss some glue here or there. Using a pencil to number each of the 16 overlaps helps to track systematic progress. This process takes time, especially if you have a lot of glue squeeze-out.

Flatten and finish

Now you have an assembled trivet. See if it lies flat on both sides. This step is important to ensure your teapot sits smoothly on the trivet. If it doesn't, then sand the trivet slightly on a piece of sandpaper that has been placed on a flat table saw or jointer bed surface. Rub the trivet on the sandpaper and check it for flatness frequently. Stop sanding as soon as the trivet lies flat.

Once it lies flat, re-sand the curves on any sanded-down areas. Also re-form any 1/8" edge round overs to unify the overall shape and design of the trivet.

Apply a finish of your choice. Many finishes will work fairly well against a medium amount of heat, but none will stand up against as object as hot as a frypan. An oil-based polyurethane is quite durable, but it may be hard to apply evenly to a project this complex. You could try spraying it on, though it would be hard to coat all the sides evenly. A wiping oil like Danish oil or polymerized linseed oil should stand up fairly well to heat, and it could also be easily re-applied if needed.

I'm sure your trivets will spark some interesting conversations when you bring them out when company is over.

Stephen has lived his whole life in Ottawa and has enjoyed woodworking since his childhood. He recently retired as a software development manager, and is enjoying spending more days in his workshop.

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stephen.gabe@sympatico.ca

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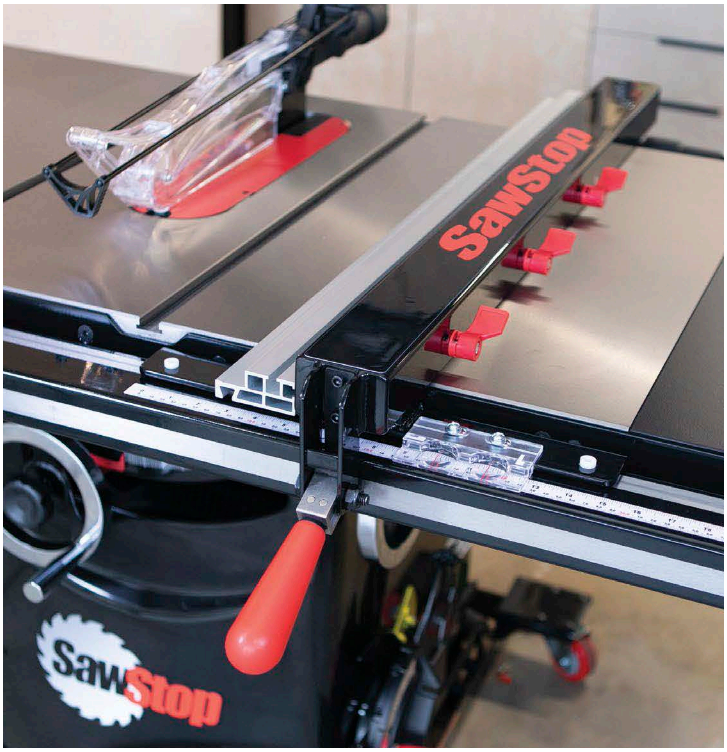
SawStop T-Glide Advance Rip Fence

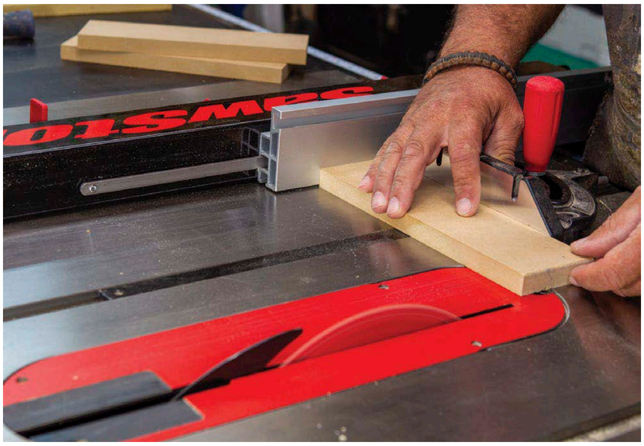
BY STEVEN DER-GARABEDIAN

Part of the reason I chose the SawStop Professional table saw was because of the high-quality components and the great fit and finish. The instructions and assembly were also what every manufacturer should achieve. The bonus was the safety features inherent in all SawStops. The fence that came with it was fine, but after using the new T-Glide Advance Rip Fence I realized what I was missing.

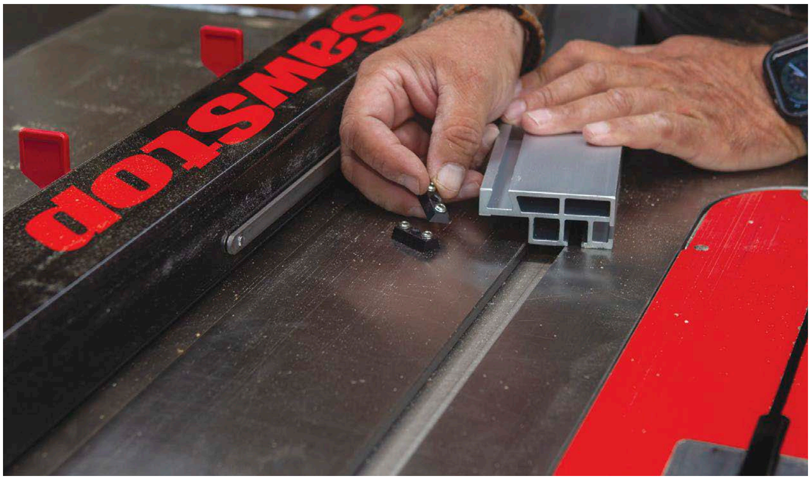
I used to have a Delta table saw with its Uni-Fence. One of my favourite features was that you could loosen a pair of knobs and pull the fence forward of the blade for safe repeatable crosscuts. (You should never crosscut with the piece touching the fence throughout the cut. You need to leave a gap so that a pinch point isn't created.) You could do this without clamping any standoffs, which was one of the downsides of that fence. It was hard to clamp



Update Your Fence – The SawStop T-Glide Advance Rip Fence will fit on any cast iron SawStop saw (ICS, PCS, CNS) equipped with an existing T-Glide fence; no modifications are needed. (Photo by SawStop)



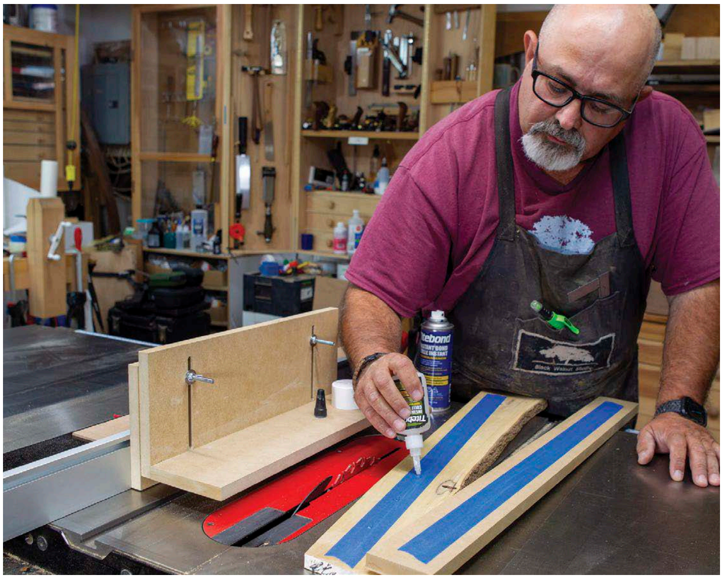
Easy Crosscuts – Once the outer surface of the fence is moved forward of the blade, it's safe to use the fence with your mitre gauge for repeatable crosscuts.



Dovetail Inserts – The included dovetail inserts allow the user to attach other accessories to the fence.

Photos by Steven Der-Garabedian

Use Your Accessories – Many accessories that woodworkers already have can still be used on this SawStop fence.



L-Fence Setup – An L-Fence is handy to have and can easily be built. It's one of the many shop-built accessories that can be used with the new SawStop T-Glide Advance Rip Fence.

accessories to it due to the curved opposite face.

SawStop's new premium T-Glide Advance Rip Fence has some very useful and unique features. The first is the aluminum face that can be positioned in multiple configurations, one of which is the aforementioned offset for crosscuts. The fence can also be used in the high position, low profile as well as a L-Fence. L-Fences have some good uses, one of which is allowing you to cut straight lines onto not-so-straight edges, in essence, turning your table saw into a jointer. The instructions that come with the fence explain how to make your own. More on that later.

The fence also includes a pair of dovetail blocks, allowing you to use and make accessories that fit into a dovetailed slot on the fence's face. Using the blocks to hold a sacrificial fence will make it less cumbersome to use without bulky clamps getting in the way. I was able to mount my generic featherboard to the fence using these blocks. You'll need an appropriate length M6 socket head cap screw to attach accessories via this method. The blocks can be stored on the fence when not needed.

Similar to the saw, the instructions are well written and cover proper setup ensuring the fence is perfectly parallel to the blade and 90° to the tabletop. The fence securely locks to the table with a downward push of the red handle. Accuracy is easy enough to achieve with a pair of adjustable magnified indicator lenses. One is for the fence in the high position while the second is for the low-profile stance; both are well marked. The fence comes set up for use on the right side of the blade, but it's possible to switch components for left side cuts.

One of the immediate differences I felt in the new fence was how well it slid across the table. At first, I chalked this up to reaching a higher level of machine setup. However, my bubble was burst when I turned over the fence and saw a pair of rollers instead of the previous fence's UMHW strip.

Accessories for any tool need to be easy to use, otherwise frustration creeps in and you'll eventually stop using it. Changing fence profiles from high to low to L-Fence is easy and quick. There are three locking levers holding the aluminum portion of the fence to the main block. They only need a one-third counter-clockwise turn to release, yet securely hold the aluminum face when locked down. The levers loosen and tighten a bar that a slot in the aluminum fence rides on. The manual also covers their adjustments, should you need a tighter grip. The Delta Uni-Fence knobs required lots of turns to release and were in an uncomfortable position. Quite the opposite here.

As I mentioned, the instructions cover making an adjustable L-Fence and creating one took very little time. A bit of research will let you know if one might be useful in your shop. I adjusted the dimensions to be more suited to my style of woodworking. I also chose to use 1/4"-20 × 2-3/4" carriage bolts and wing nuts instead of the recommended 6mm. However, you'll need to buy appropriate length M6 socket head cap screws to mount the fence to the included dovetailed blocks.

The main use of the L-Fence in my shop is for straightening edges on the table saw. There are other ways of doing this, but this method works well for me in many situations. The process is to first use a spacer on the plank to set the fence height. A 1/8" or 1/4" piece of hardboard works very well for this. Next, attach a straight edge to the top of the plank via double-sided tape or the CA and masking tape trick. Adjust the position of the fence to remove enough material and use the straight edge to ride along the horizontal portion of the L-Fence. I find this method to be efficient and safe as the fence acts as a guard during the cut.

This new premium fence is smartly designed with many easily changed configurations. It's also a step up with some good features that makes using the table saw efficient and safer with the different possible profiles.

Tester: Steven Der-Garabedian
Manufacturer: SawStop
Model: T-Glide Advance Rip Fence AGTP-FA
MSRP: $490

STEVEN DER-GARABEDIAN

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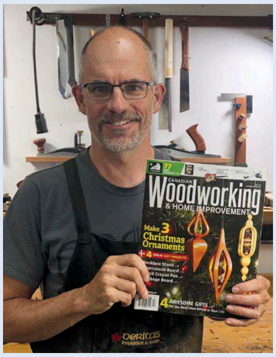

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The **King Canada High Velocity Air Mover** (KC-1600AM) delivers an impressive 1600 CFM of airflow, making it the perfect solution for fast drying and powerful ventilation. Ideal for construction sites, workshops, basements, and flood restoration, this rugged unit is built for heavy-duty use. Its three-speed settings1,000 to 1,600 CFM) let you control airflow to match the task, while the durable housing and compact design make it easy to transport and store. The built-in carry handle and power cord wrap add convenience for professionals on the go. The LCD display allows setting both fan speed and a timer for delayed shutoff. Reliable, efficient, and versatile, the KC-1600AM keeps air circulating to get the job done quickly and effectively.

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Get Consistently Smooth, Seamless Finishes

The **King Canada 6" × 89" Oscillating Edge Sander** (KC-689-OSC-FX-1) is engineered for precision sanding on wood, plywood, and composites. Its oscillating belt action reduces heat buildup and loading, ensuring smoother finishes and longer abrasive life. The spacious cast iron table is easily adjustable via a raise-lower handlewheel and tilts from 0° to 45° for bevel sanding, while the adjustable belt platen handles flat, contoured, or curved edges with ease. A powerful motor delivers consistent performance, and the built-in dust port keeps your workspace cleaner. Durable, versatile, and built for demanding shops, the KC-689-OSC-FX-1 is an essential tool for furniture makers, cabinet shops, and serious woodworking enthusiasts.

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Quiet Power Anywhere

The **King Canada 3-Gallon Ultra-Quiet Oil-Free Air Compressor** (KC-1030A) is built for performance without the noise. Delivering up to 120 PSI, it's ideal for powering brad nailers, staplers, and other small air tools in the workshop or on-site. Its oil-free pump ensures clean operation with zero maintenance, while the ultra-quiet motor makes it perfect for indoor use. Compact and lightweight, the KC-1030A features a durable steel tank, easy-to-read gauges, and a convenient carry handle for portability. Whether you're a contractor or DIYer, this compressor offers reliable power, quiet operation, and long-lasting durability in a highly portable package.

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Cut Through Steel with Confidence

The **King Canada 14" Metal Cutting Chop Saw** (KC-8314) delivers powerful performance for fast, precise cuts in steel, aluminum, and other metals. Equipped with a robust 15-amp motor and a 14" carbide-tipped blade for cool cuts, it's designed to handle tough job site and workshop demands. The quick-release vise securely holds materials at various angles, while the adjustable fence allows for accurate repeat cuts. A spark deflector enhances operator safety, and the ergonomic handle ensures comfortable control during extended use. Rugged, dependable, and easy to operate, the KC-8314 is the go-to solution for contractors and metalworkers who demand efficiency while cutting things like re-bar or angle iron lintels.

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Wide, Smooth, and Precise Sanding

The **King Canada 22" Open Drum Sander** (KC-2244DS) is designed to deliver professional-grade surface finishing for large panels, tabletops, and doors. Its open-ended design allows sanding of workpieces up to 44" wide in two passes, while the powerful motor ensures consistent performance under load. The precision-adjustable drum provides uniform sanding thickness, and the variable conveyor speed offers greater control for different materials. A heavy-duty steel frame adds stability, while the integrated dust collection port helps maintain a cleaner shop environment. Rugged, versatile, and accurate, the KC-2244DS is the ideal solution for woodworkers who demand smooth, flat, and flawless results.

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Cordless Telescopic Pruning Shear with Pivoting Head

The **Einhell Professional Telescopic Pole Pruning Shear (Art. No. 3408350)** cuts branches up to 1.1" in softwood and 0.6" in hardwood. The telescopic pole extends from 3.3 to 5.2 feet and features a 7-step pivoting head for precise positioning. High-quality bypass blades ensure clean, efficient cuts, and the tool can be used either with or without the telescopic pole. Weighing just 4.4 pounds, it includes a handle guard and plastic blade cover. A switch controls blade opening and closing, while blade changes are quick and effortless. With a 4.0Ah battery, the shear delivers up to 2,900 cuts in 5/8" dry beech wood.

Einhell.ca

Cordless Patio Cleaner with Reversible Brush Action

Equipped with an extra-wide rotating brush (4-1/2" × 8-1/4"), the **Einhell Cordless Patio & Surface Cleaner (Art. No. 3424211)** operates between 800 and 1,400 RPM. The forward/reverse function ensures maximum cleaning results, while brushes can be swapped out quickly without tools at the push of a button. A telescopic aluminum handle with an adjustable secondary grip provides comfort, and an integrated hose clip allows easy connection to a garden hose. The cleaner connects via a standard 3/4" 11.5 GHT fitting and supports up to 87 PSI water inlet pressure. Weighing 9 pounds, it comes with splash guards and a water control valve.

Einhell.ca

Cordless Pole Saw with OREGON Bar & Chain

Equipped with an 8" OREGON bar and chain (3/8" pitch, 33 teeth) the **Einhell 8" Cordless Pole Chain Saw (Art. No. 3410583)** delivers a cutting speed of 18.4 ft./sec. The chain has a thickness of 0.043" and is automatically lubricated from a 70 ml oil tank. Durable metal gearing ensures long service life, while the cutting head is fixed at a 30° angle for controlled cutting. Weighing 7.9 pounds, it includes a 26.4" extension pole, shoulder strap, and sturdy cutter guard. With a 4.0Ah battery, the saw makes up to 100 cuts in 2-3/4" × 2-3/4" timber.

Einhell.ca

Lightweight Cordless Blower with 3 Versatile Nozzles

The **Einhell 18V Universal Blower (Art. No. 3433551)** includes three interchangeable tubes for different tasks: a long tube for clearing leaves, a medium tube for workshop cleanup, and a short tube for lighting barbecues or fire pits. The motor runs from 4,500 to 15,000 RPM with electronic speed control across five power levels. It delivers air speeds up to 250 km/h with an air volume of 110 CFM. Weighing just 2.2 pounds, it features an integrated wall holder for convenient storage. With a 2.5Ah battery, the blower provides up to 80 minutes of run time in idle mode. Battery and charger sold separately.

Einhell.ca

Cordless Wet Mop with BOOST Mode for Stubborn Stains

The **Einhell Cordless Power Wet Mop (Art. No. 3437120)** features an 11.4" wide roller, ideal for cleaning hardwood, laminate, parquet, PVC, linoleum, and tile floors. It includes a 0.11 gallon (400 ml) fresh water tank and a 0.08 gallon (300 ml) dirty water tank. A trigger on the handle provides precise water control, while the BOOST function increases roller speed to tackle tough stains. The unit weighs 5.5 pounds and includes a foldable battery holder, self-standing function, and a parking/cleaning station with a carrying handle and cleaning tool.

Einhell.ca

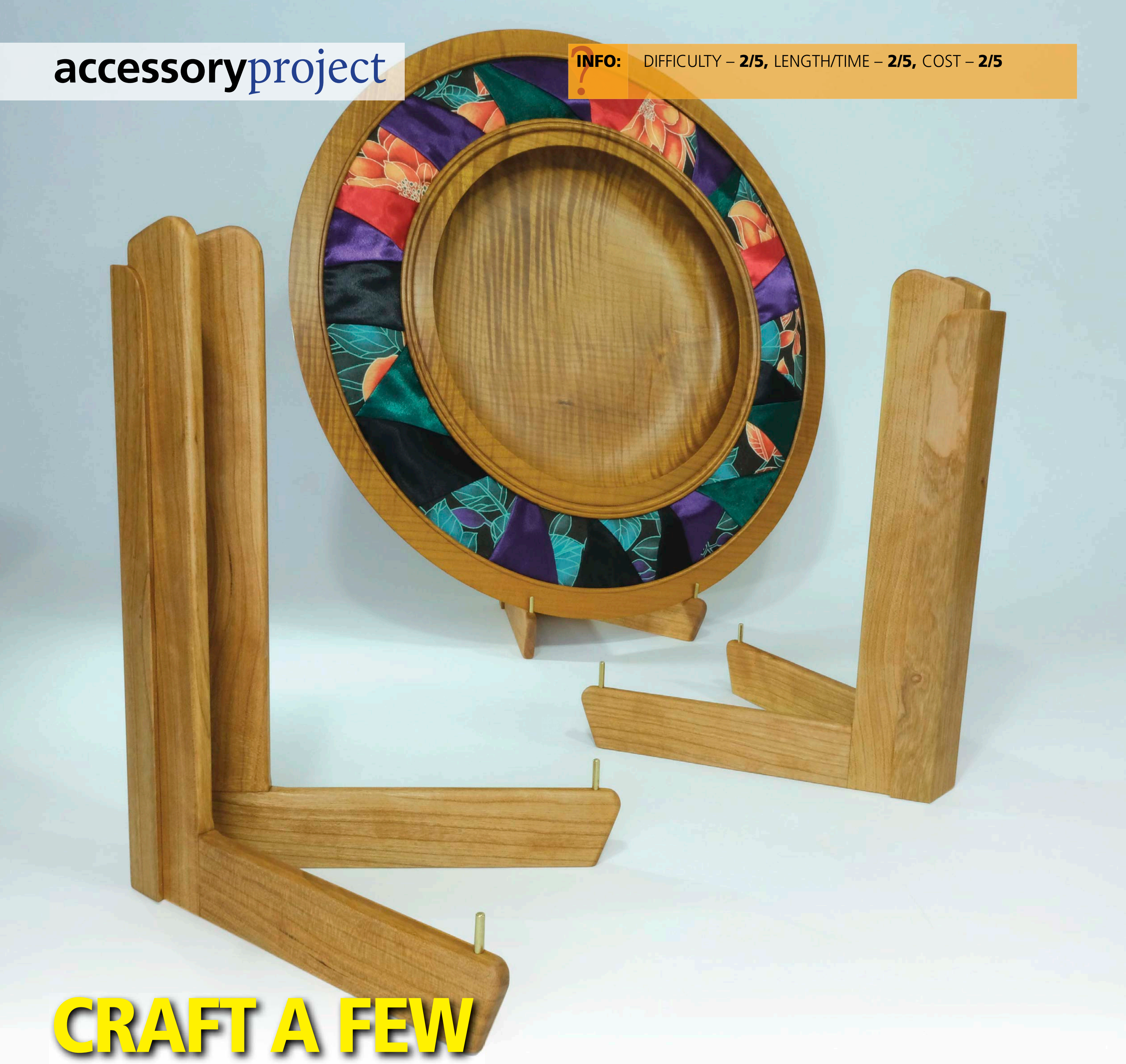
Cordless Stick Vacuum with ECO & BOOST Modes

The **Einhell Cordless Stick Vacuum Cleaner (Art. No. 2347184)** cordless stick vacuum delivers up to 21 CFM of suction power through a 3-stage filtration system. The 0.16 gallon (0.6 L) dust container features a bag-free emptying system for convenience. Four integrated LED spotlights illuminate dark areas while cleaning, and rubberized wheels protect floors from scratches. The vacuum weighs just 4 pounds and offers two operating modes: ECO for extended run time and BOOST for maximum suction. With a 2.5Ah battery, it runs for 31 minutes in ECO mode or 13 minutes in BOOST mode.

Einhell.ca

accessoryproject

INFO: DIFFICULTY – **2/5,** LENGTH/TIME – **2/5,** COST – **2/5**



CRAFT A FEW DISPLAY STANDS

Treasured awards, memento plates, meaningful artwork or fine photography all deserve a special space to be seen and enjoyed.

Photos by Mark Salusbury Illustration by Len Churchill

BY MARK SALUSBURY

Sure, you could hang your awards on a wall, but then they would just get lost in the background and passed by. Instead, a display stand cradles your treasures, and keeps them close by on a desk, dresser or shelf. A stand also makes rearranging or adding more items easy to do.

You could buy a plastic or wire stand, but they seldom do justice to the objects you want to make special. Here's how to craft attractive display stands from the wood of your choice to add a rich dimension to your home or office.

Materials for each stand are simply five wooden parts and two 1/8" diameter brass pins. Here, I've designed stands crafted of cherry wood, a mid-toned species. Of course, there's great economy in making more than one once you're in the groove, and the material cost is peanuts, so why not? I'll outline how to make a pair of stands from one piece of rough stock measuring 1" × 4" × 30" OR 2-1/4" × 2-1/4" × 30", depending on available stock.

The nice thing about this design is if you want to support larger, smaller or deeper objects, it's adaptable by simply widening the spine's width to alter the footprint, and/or changing the height of the backs or length of the legs to suit treasures of any size.

Start cutting

Begin crosscutting your stock 20" from one end, then rip, plane and sand this blank into strips +1-3/8" wide. These in turn get ripped, thicknessed and sanded to yield blanks 1-3/8" wide × 5/16" thick. Each of these can then be crosscut to final lengths of 10-1/2" (back) and 7-3/8" (leg). Uniform widths and thickness are quite important as you move onto the joinery next.

Create a rabbet at one end of each part precisely half the part's thickness (5/32") and 1-3/8" deep, the exact width of the parts, aiming to create a half-lap joint between one back piece and one leg. I did this on my router table, though a table saw would also work.

Make four mirrored sets of backs and legs; two oriented left-to-right and the other two right-to-left.

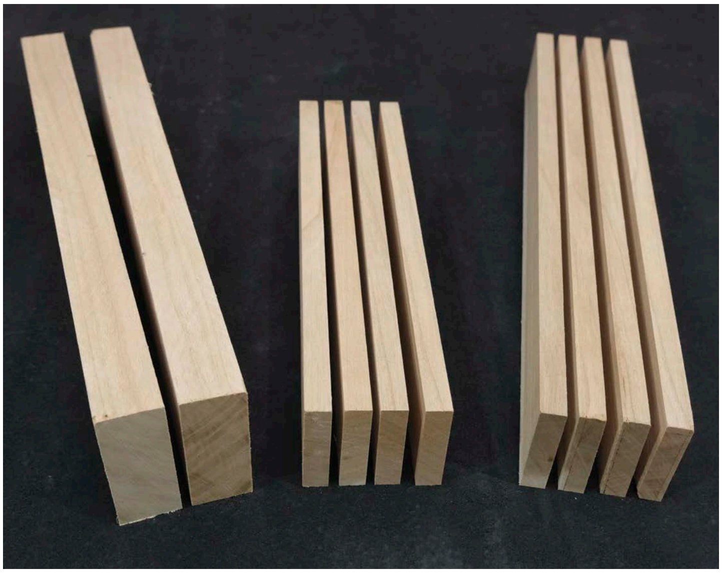
Easy assembly

Glue each back/leg set together at the half-lap joint and clamp, making sure they're perfectly square, removing any glue squeeze-out before it's fully cured.

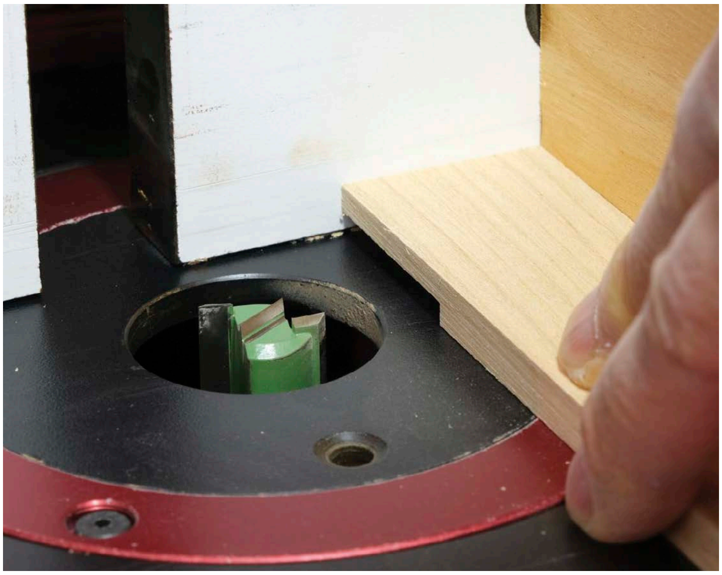
Some shaping

With the assemblies now paired to make two stands, and their inner edges flush, apply strips of masking tape midway along the inner face of the legs and backs to keep them aligned. Now sand the full outer length of the backs and bottom of the legs flush, unifying their planes squarely to their sides. Now that the pairs are matched overall, it's time to introduce some shaping.

First, draw a 1/2" radius at the top front of the backs, a 1/4" radius at the top front of the legs, then from those marks draw a 22.5° angle rearward from the top radius and downward from the front of the legs. Remove the radius and angle waste just slightly outside the lines, then shape and sand to the markings, squarely across the pair of assemblies.



Make Multiples – Here, Salusbury has machined enough parts for two stands. One stand is great, but it's really not much more work to create multiple stands at the same time.



Half-Lap Joints – A half-lap joint is a simple, strong way to join the two frame parts together. Salusbury made this joint on a router table, though a table saw is also a good option.

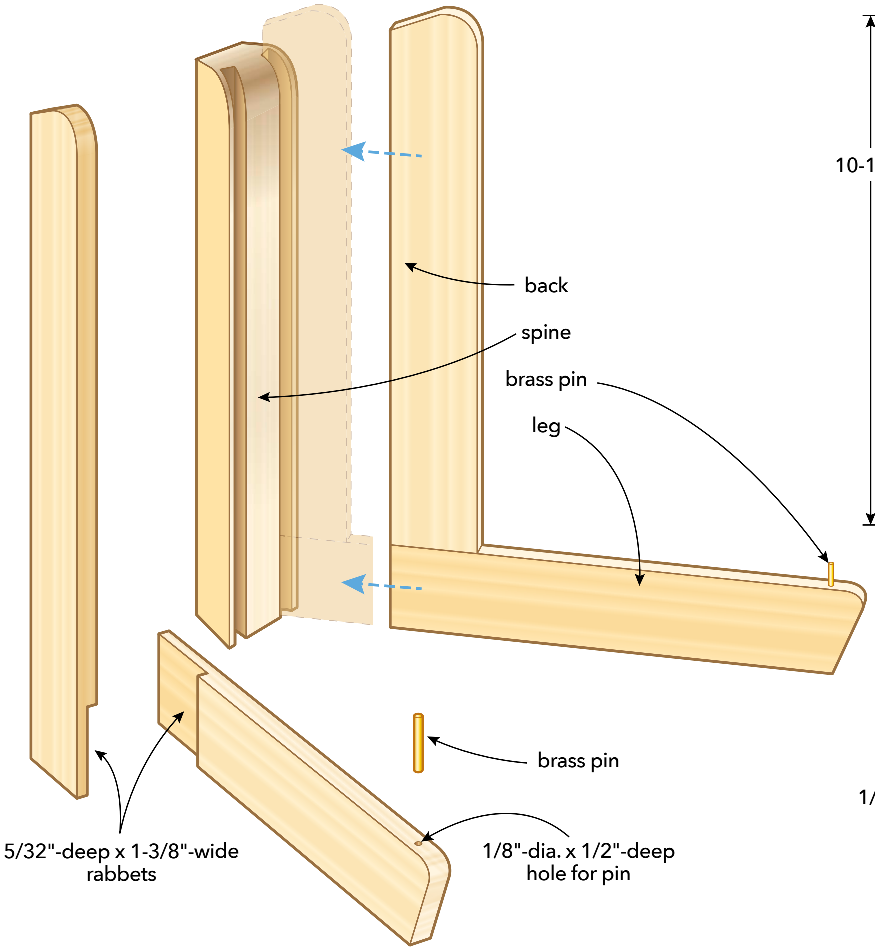
Drill some holes

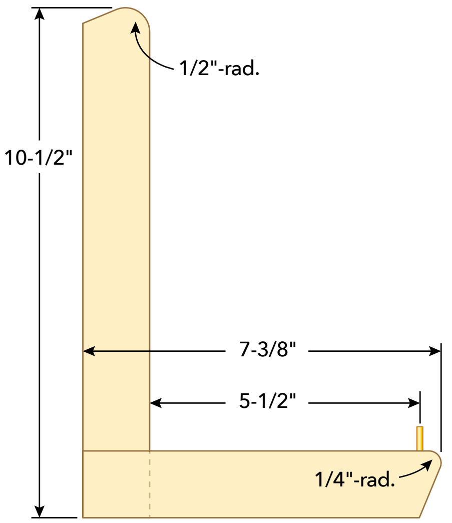
Next, mark the site for inserting the brass pins, 5-1/2" forward of where the backs join the legs, drawing a line squarely across both legs and locating each leg's midpoint along that line. Held vertical at the drill press, bore the 1/8" diameter × 1/2" deep holes to receive the pins later.

As you're making multiple stands, now's the time to mark each pair on the rear edge of each back for reference before glue-up.

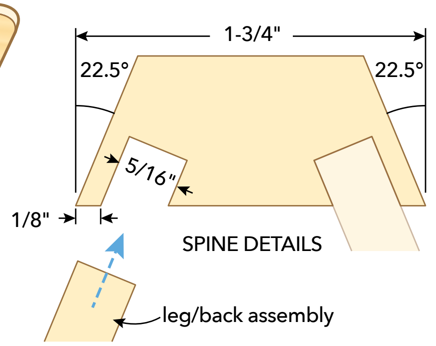
Rout some round overs

Remove the masking tape and rout a 1/8" radius along the top leading edge and down the front of each assembly, leaving the bottom and back edges square.


back
spine
brass pin
leg
brass pin
5/32"-deep x 1-3/8"-wide rabbets
1/8"-dia. x 1/2"-deep hole for pin



LEG/BACK DETAILS



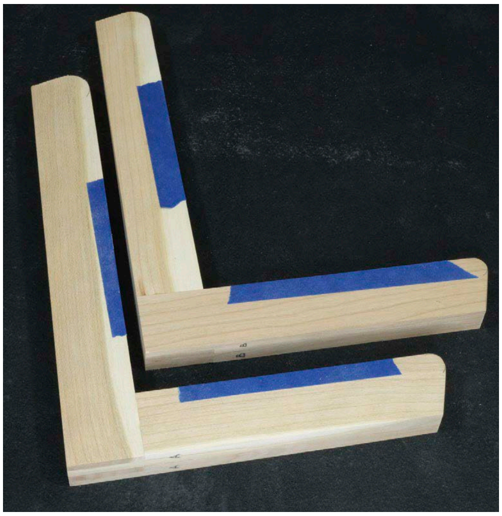
SPINE DETAILS

Materials List

Part	Qty	T	W	L	Material
Backs	2	5/16	1-3/8	10-1/2	Black Cherry
Legs	2	5/16	1-3/8	7-3/8	Black Cherry
Spines	1	3/4	1-3/4	9-3/4	Black Cherry

Hardware List

Name	Qty	Size	Details
Brass Pins	2	1/8" diameter × 3/4" long	



Align Them – When the back and leg parts are brought together, Salusbury likes to tape the assemblies together so he can sand and even the rear and lower edges.

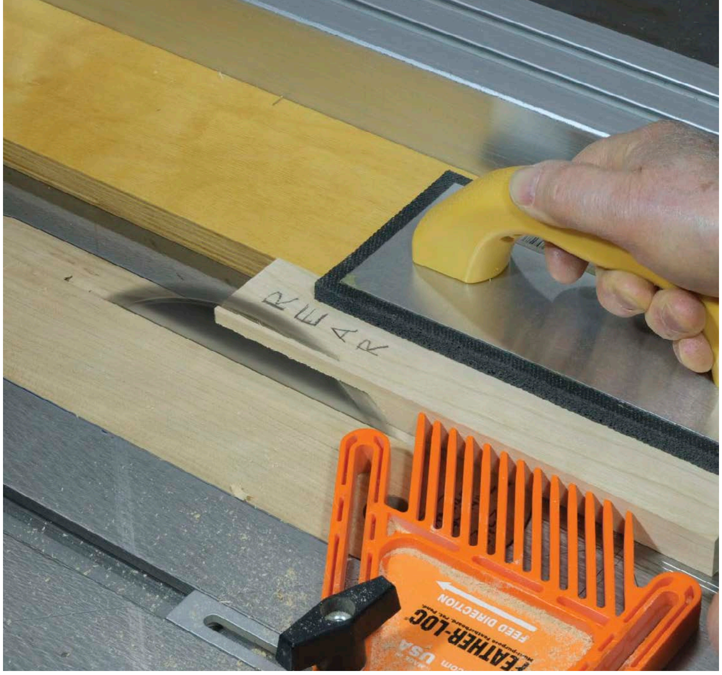
Sand each assembly overall, ease all edges, then shift to the next step, making the spines.

Time for spines

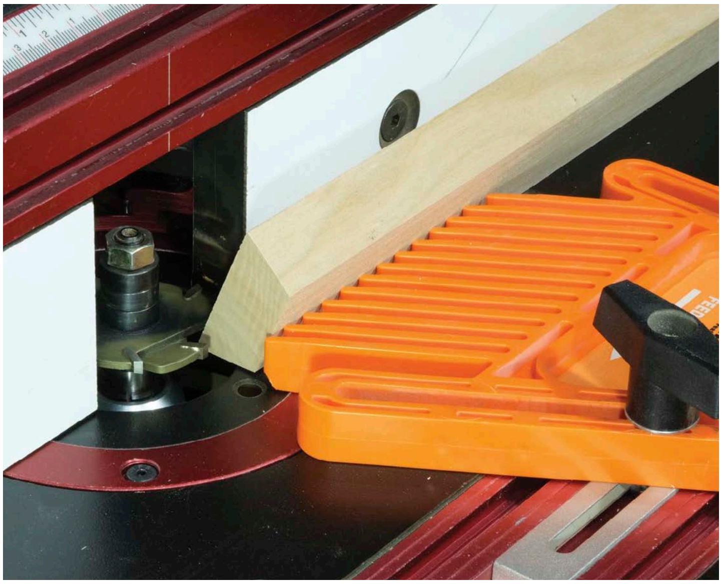
Craft the spines by milling and sanding the remaining 10" stock into two blanks with final dimensions of 9-3/4" long × 1-3/4" wide and 3/4" thick. Lay out a 1" radius across what you want to be the top front of each spine, then shape and sand it squarely across the blanks.

Fit the table saw with a zero-clearance throat plate and an auxiliary fence clamped to the main fence and tight to the table. Using an appropriate push device (I use a foam rubber tiler's grout float), rip 22.5° angled chamfers along both long edges of each blank, leaving the front face the full 1-3/4" wide. The safety measures should also yield a quality surface right off the blade so sanding the chamfers next to a uniform final surface is easy.

Install a 1/8" winged slotting cutter stacked on an arbor in your router table. A table-mounted featherboard can help keep the workpiece pressed into the fence, but if it's too tight it will force the workpiece upwards due to the angles cut into the spine. With the chamfer of the spine facing down and the front corner of the spine snug to the base of the fence, rout slots 1/8" up from the chamfered edges, parallel to the chamfers, and 3/8" deep. A slow to medium router RPM works well here. Flip the spine end-over-end and repeat with the other



An Easy Chamfer – With the blade set to 22.5°, Salusbury rips chamfers into both sides of the spines.



Rout the Grooves – A router table, equipped with a winged cutter, will machine the groove to accept the backs. Salusbury uses two 1/16" wide cutters stacked on top of each other, rather than one 1/8" wide cutter, because the work is spread between more teeth, and hence more cuts, but this isn't mandatory.

chamfer. I use a tiler's rubber grout float, modified for this application, to advance each spine past the cutter.

After measuring the thickness of each back/leg assembly, raise the router bit a smidgen and test the fit. Repeat until you have a snug fit between each assembly and its slot. Sand each back/leg if needed to perfect a fit.

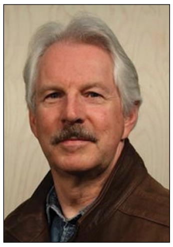
Bring them together

With each spine face-up on the bench, and keeping in mind the mirror image back/leg assembly you created earlier, run a bead of glue deep within the central 8" of each slot. Next, align the three components precisely flush along their bottom edges and press in each back/leg assembly until fully seated. Tape each assembly firmly until the glue sets.

As the glue cures, fashion the 1" long bronze pins. Cut, round-over and burnish both ends of each pin. Before applying the finish, tap each pin into the 1/8" holes bored earlier.

Lastly, do any detailing before applying your finish of choice. I used three coats of Danish oil in these examples.

Now all that's left is to display your treasured objects, supported elegantly yet unobtrusively.



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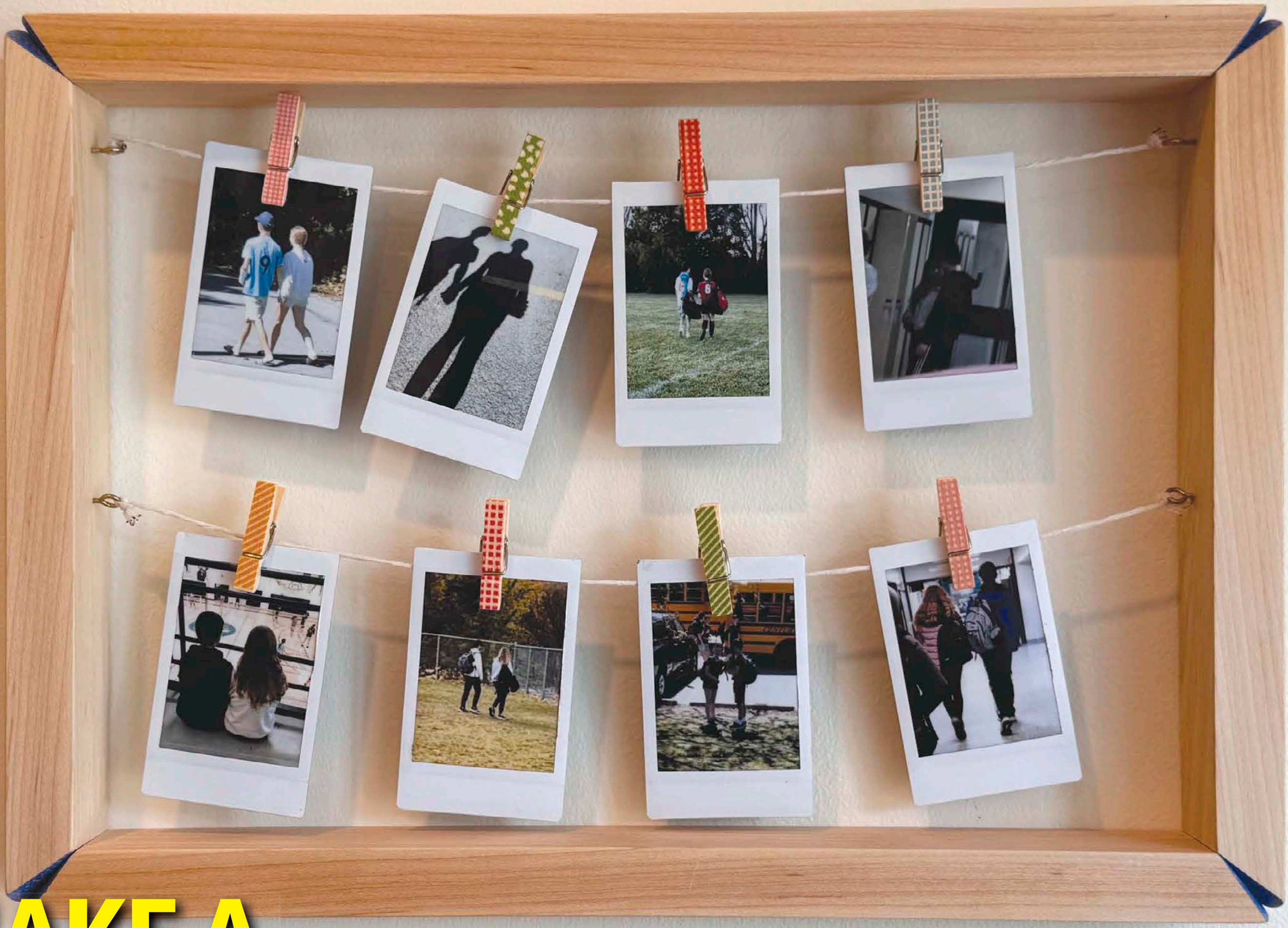


MAKE A PHOTO STRING FRAME

Editor Rob Brown's daughter writes about the photo string frame she made for a gift. Decorative bevel joints added a focal point to an otherwise fairly simple project.

This customizable frame using string and clothespins can be easily altered to fit as many photos as you'd like and be adjusted for new ones, too.

I have an Instax photo printer, which does a great job printing out digital photos from my phone. My photos measure 2-1/8" × 3-3/8". There are likely other instant photo printing options as well. There's also nothing wrong with using standard 4" × 6" (or larger) images to hang in this type of frame.

Mapping it out

First, create a model of your frame. I made mine 11" × 15-1/2" to hold eight photos. The frame pieces were 1-1/4" wide and 7/8"

Photos by Rob Brown

thick. Before deciding on the final dimensions, I drew the frame on a piece of plywood and placed the eight photos inside it, arranging them with an appropriate amount of space between them, adjusting the size of the frame to fit the eight photos nicely. Adjust the size of your frame to give you the inside dimensions and visual proportions you'd like.

Breakout

I started with a piece of maple 53" long and 1-1/2" " wide, which gave us a few inches extra to work with. There's also nothing wrong with obtaining the four frame members from a shorter, yet wider, piece of lumber. I broke out four pieces to use for the frame; two 11" long and two 15-1/2" long, adding one inch to each piece to leave room for error. Once this was done, I jointed and planed the pieces so they were flat and to the final thickness.

Rip the pieces to their final width of 1-1/4".

Bevel the frame ends

You'll now need to cut both ends of each piece on a 45° bevel, ensuring the length of the two opposing pieces are identical.

To do this, start by cutting bevels on one end of each frame piece. Next, mark the desired length on one of the side pieces, set up a stop block and cut the two side pieces to length. Following that, mark the desired overall length on the top piece and set up a stop block. Make the two cuts on the top and bottom frame pieces.

Crazy corners

Simple bevel joints are nice, but since I wanted to add a unique detail to this special frame, we decided to have some fun with the corner joints. There are lots of options, but I took inspiration from one of my dad's favourite Canadian woodworkers, John Glendinning, and created what looked like a gap on the four corner joints, before adding colour and texture to all four joints.

I played around with some scrap to give us an idea of how it would look, then we determined the amount of gap we wanted in the corners. I then turned to the four frame members and marked a line 1/4" away from each bevelled corner, on the front edge. Next, I marked the curve on the outer face of each workpiece using a French curve. I added a couple of pieces of masking tape to the French curve, then marked two lines on the tape, so I could consistently align the French curve template and draw the curve on all the workpieces. While marking the frame members, I made sure the gap was being marked towards the front edge, not the rear edge.

Sand the gap

After I labelled the sides, I used a disc sander to add the curve into each of the bevels, using a 30° angle. It's easy to remove too much material with a disc sander, so move slowly and try not to sand beyond the line. Check to make sure all the joints look good and resand them, if necessary.

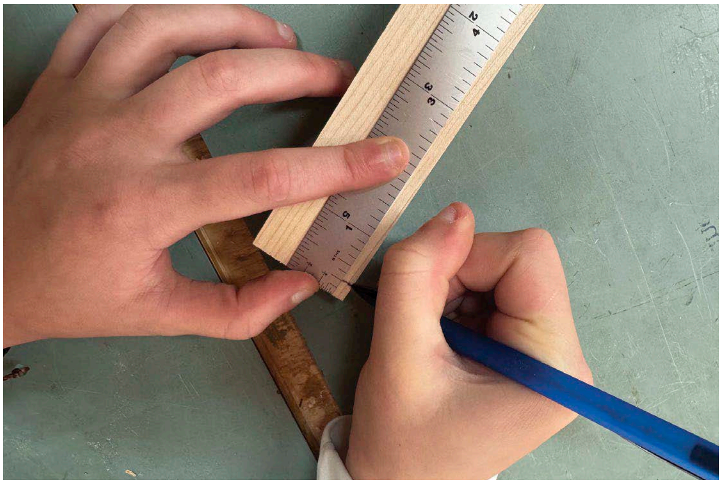
Decorate the open joint

I brushed on two coats of royal blue milk paint to add colour to the small curved, visible surfaces of the bevel joints on all four corners of the frame. You could also use just about any other type of paint for this.

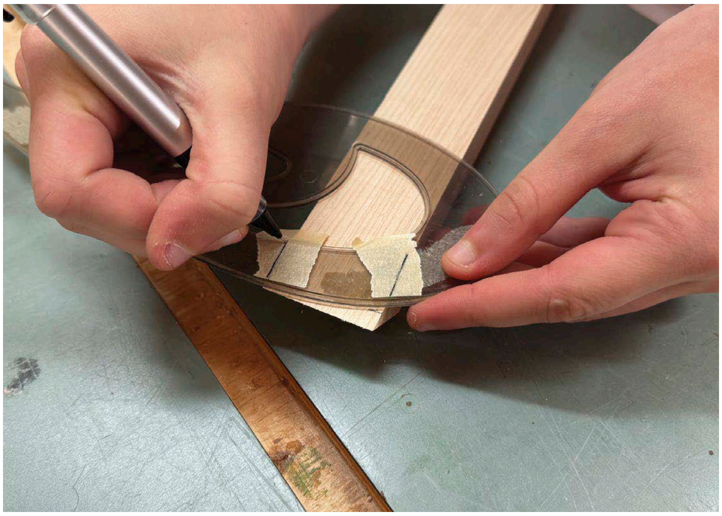
Once the paint dried, I used a rotary tool to carefully add texture to the curved surfaces. It's crucial to be patient with this step,

Get Organized – Drawing out the frame and string placement full-size is a great way to determine the project's size based on the number and dimensions of photos you want to include.

Cut Bevels – Once a bevel joint is machined into one end of each of the frame pieces, you can set up a stop block to machine the bevels on the other end of each mating workpiece. You'll need two setups, as the top / bottom workpieces and the two sides are likely going to be different lengths.

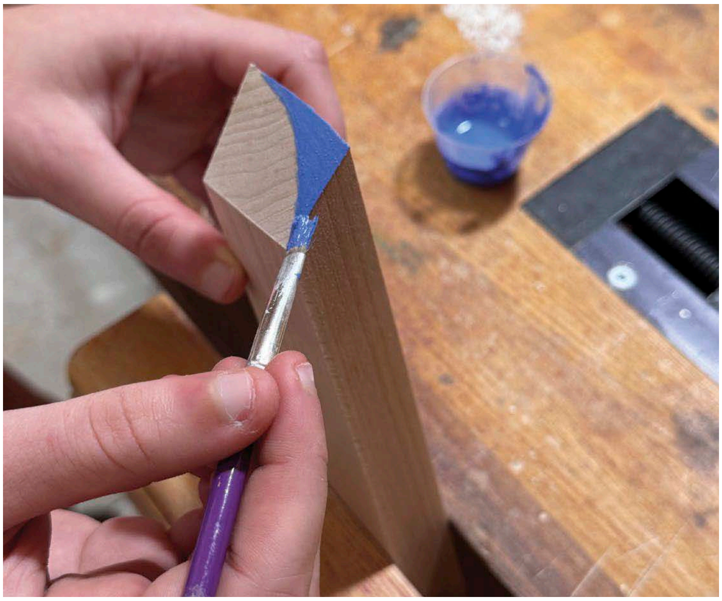


Mark the Curve – For accuracy, mark the front end of the curve on each workpiece. The curved portion of this joint was positioned so it ended 1/4" away from the corner of the workpiece.



Keep It Consistent – Adding two pieces of masking tape to the French curve, directly over where the two edges of the workpiece are, allow you to consistently mark the curve onto each corner.

Sand the Curve – A disc sander with its table tilted allows you to accurately machine the curves into the eight workpieces.



Colour Your World – A splash of colour will add a bold focal point and provide great contrast with the wood you choose for your frame.

as going fast will cause the finished result to be messy. While I was using the rotary tool, I noticed that resting the edge of my hand on the workpiece was helpful for keeping the rotary tool steady and allowing me to leave a fairly even texture. If you leave the tool on the surface for too long, the surface starts to burn, which looks bad in the final product. Practicing on some scrap, and having lots of patience, will ensure the texture looks great.

Sand and ease

Sand the three visible surfaces of the pieces in your frame, taking care to not only remove all machine marks, but to also remove any blue paint that may have been applied where it shouldn't have been. Finally, ease all four edges of each frame piece.

Screw eyes

A screw eye in each side will secure the end of each length of string, so four screw eyes were needed, in total. Working with our initial sketch, I marked the height of the screw eye pilot holes, ensuring they were centred on the width of the frame. For our frame, I positioned them 3/4" from the top and 5-1/4" from the bottom. After the pilot holes were marked, I drilled them using a drill press. A hand held drill would also work.

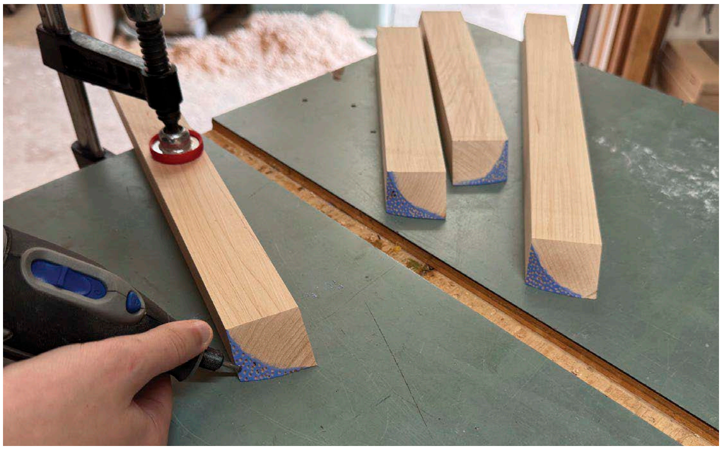
How to hang it

The bottom of the frame could be set on a surface, with its top resting against a wall, but I wanted the recipient to be able to hang this frame.

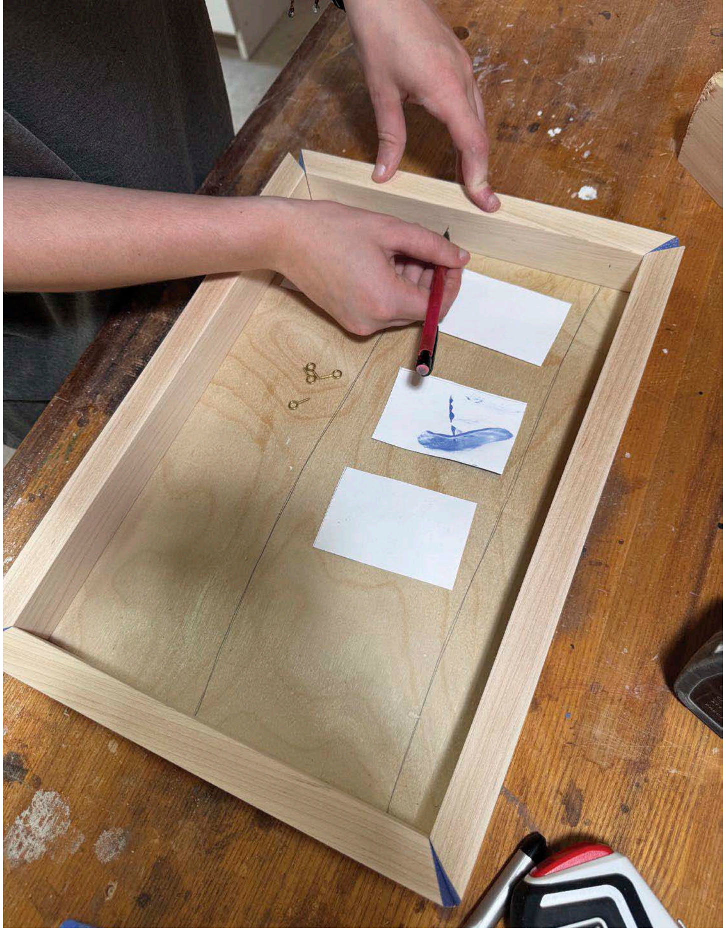
You could attach a picture frame clip to the rear edge of the top piece, but I decided on a more secure approach. My dad used the router table to rout a picture hanging slot in the back of the top piece for hanging the frame. You might want an experienced adult for this step. We adjusted the fence so the bit routed the picture frame groove in the centre of the rear edge of the top piece.

Assembly

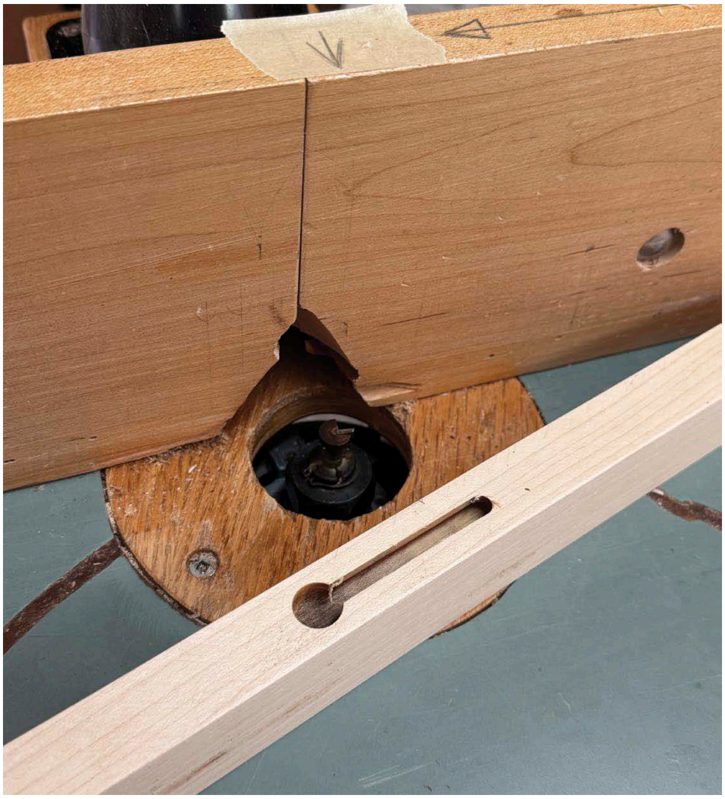
I set out the frame pieces so their inner faces were down and with the mating edges butting together, then put a piece of tape across each joint, ensuring the corners were fairly tight together. Make sure to add a few layers of tape all across the width of the joint, as this will help bring the parts together, and also keep glue off the



Time for Texture – The addition of texture also provides a strong focal point, especially because you remove paint from the areas you've textured. Patience and practice help produce a fairly even pattern and a pleasing look.



Mark String Locations – Checking string heights against your full-sized pattern will help you determine where to drill the screw eye pilot holes. The frame is just held together with masking tape at this stage.



Hanging Options – One option to be able to hang the frame is routing a picture frame slot into the back edge of the top frame member. You could also attach a standard picture frame clip to the same rear edge.

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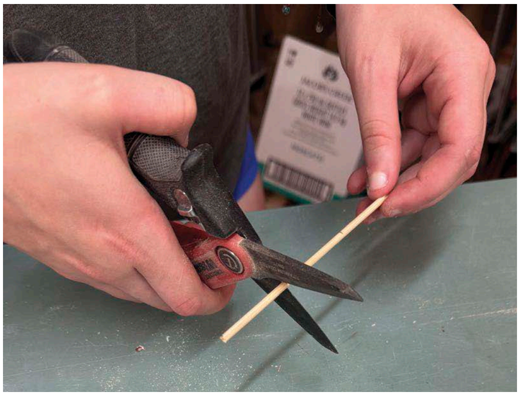
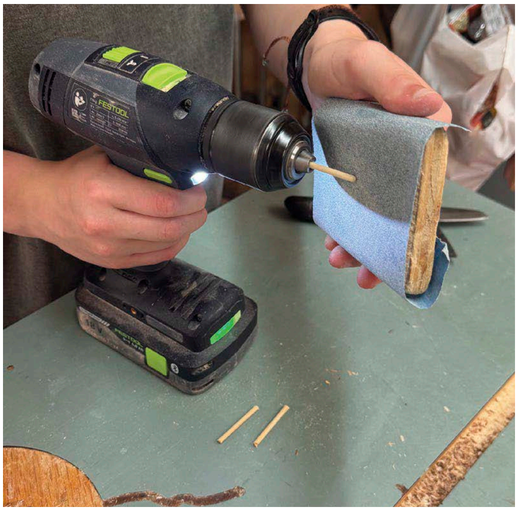
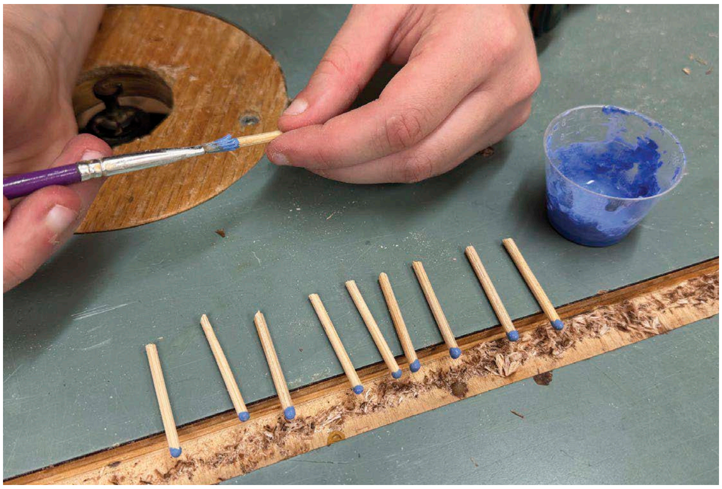


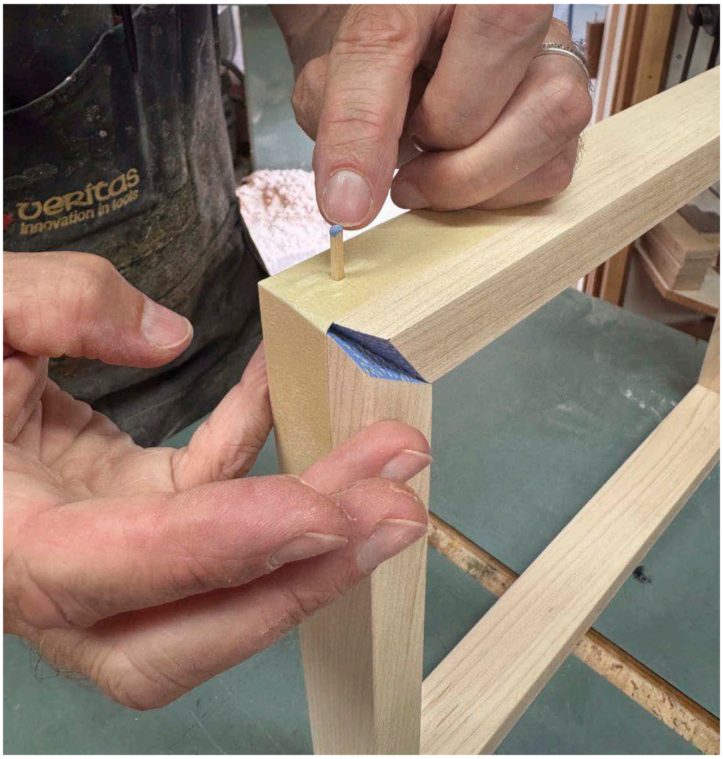
Snip to Length – A pair of heavy-duty scissors or snips will quickly cut the 1/8" diameter dowels to length.



Shape Their Ends – Once a dowel is chucked into a drill, you can pull the trigger and shape the tip to your liking with a sanding block.



Colour the Tips – Once shaped, each dowel tip can be coloured to match the bevel joints.



Press Them In – Finger pressure should be enough to seat the dowel. If that's not the case, a few light taps from a small hammer should do the trick. Just ensure the dowels are all sized properly before colouring their tips, and either discard the thick ones or sand them down a bit.

wood's surface when you install the painted dowels.

I applied a light layer of glue on the joints first and then rubbed it in. Then, I applied a bit more glue to the joints. I wrapped all four pieces together to assemble the frame, added another piece of tape across the fourth joint and let the glue dry.

In the meantime…

The dowels I added serve two functions: to add strength to each corner joint and to add some spice to the design. Before doing any work on the dowels, or drilling holes in the corners of the frame, check the dowels you're using fit into the hole you're drilling. I used food preparation skewers made of bamboo, but standard dowel rods from a hardware store are also an option.

While the glue on the frame was drying, I cut the dowels to length. They were about 1-1/4" long. I also cut a few extras, just in case they didn't fit perfectly.

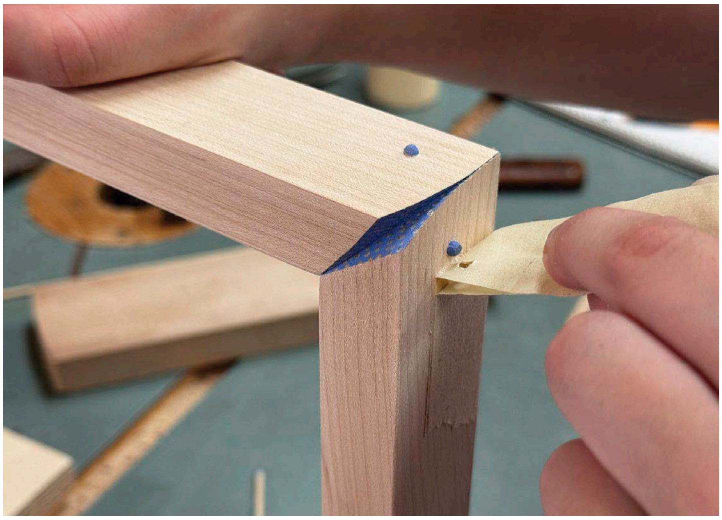
Chuck each dowel into the drill and use a sanding block to round one end of each dowel while the drill trigger is being pulled. Once they were rounded, I painted the rounded ends of each dowel with the same royal blue milk paint as we used for the curves, then set them aside to dry.

Drilling, again

Once the frame and paint had dried, I drilled the holes in the sides of the frame for the dowels to go into. Be sure to drill the holes through the masking tape used to hold the four frame joints together for gluing. If the tape isn't where you want the holes to be, simply add more tape in that area. Also be sure to drill the holes deeper than the dowels are long, so you can fine-tune the amount that each dowel head will protrude above the surface of the frame during installation. You don't want any of the dowels to bottom out in the holes. I used a drill press for this step in order to ensure the holes were straight, clean and deep enough.

Install the dowels

After I drilled, I tested to make sure the dowels fit into the holes. Some of them were too big to fit so I sanded them slightly, reducing their diameter. This is more easily done before applying glue to any



Like Magic – Once the dowels have been installed, and have had a chance to partially dry, remove the tape. This will remove any glue squeeze-out created from installing the dowels.

of the surfaces. Both bamboo skewers and hardware store dowel rods aren't always uniform in diameter.

I positioned dowels on the visible side of the joint, slightly offset, so they wouldn't interfere with each other.

Once the holes were drilled, and I knew the dowels fit, I added some glue to the holes, a tiny bit of glue to the dowels and pressed them into the holes. Light hand pressure, followed by a few light taps with a small hammer if needed, should be enough to seat the dowels so their heads protrude slightly above the surfaces.

Final touches

Once the dowels were in, and the glue at least partially dry, I took the tape off and eased the edges. Removing the tape should remove any glue squeeze-out from when you installed the dowels. I removed any glue squeeze-out that remained and prepared for finishing.

Finishing it up

I applied three coats of oil-based aerosol spray polyurethane, sanding between coats. It takes some time to dry properly but offers good protection.

Once the finish was dry, I put in the screw eyes to hold the string. I tied the string through the screw eyes and added the photos using colourful clothes pins. At this point it was ready to wrap. I wish my gift wrapping turned out as nicely as this great picture frame.

Rob's daughter is 15 years old and often uses her new woodworking skills (and her dad's help) to make gifts for friends and family.

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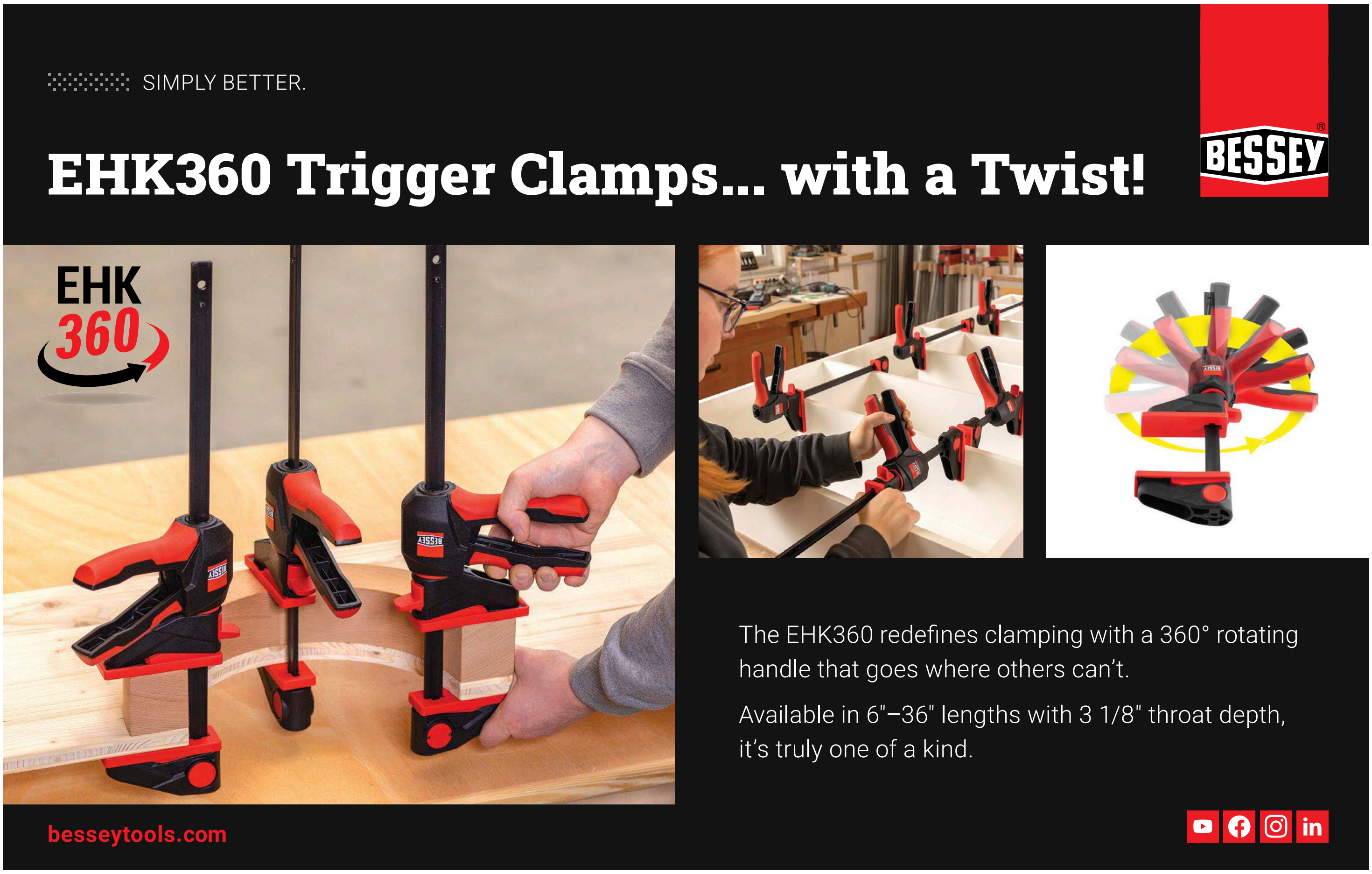
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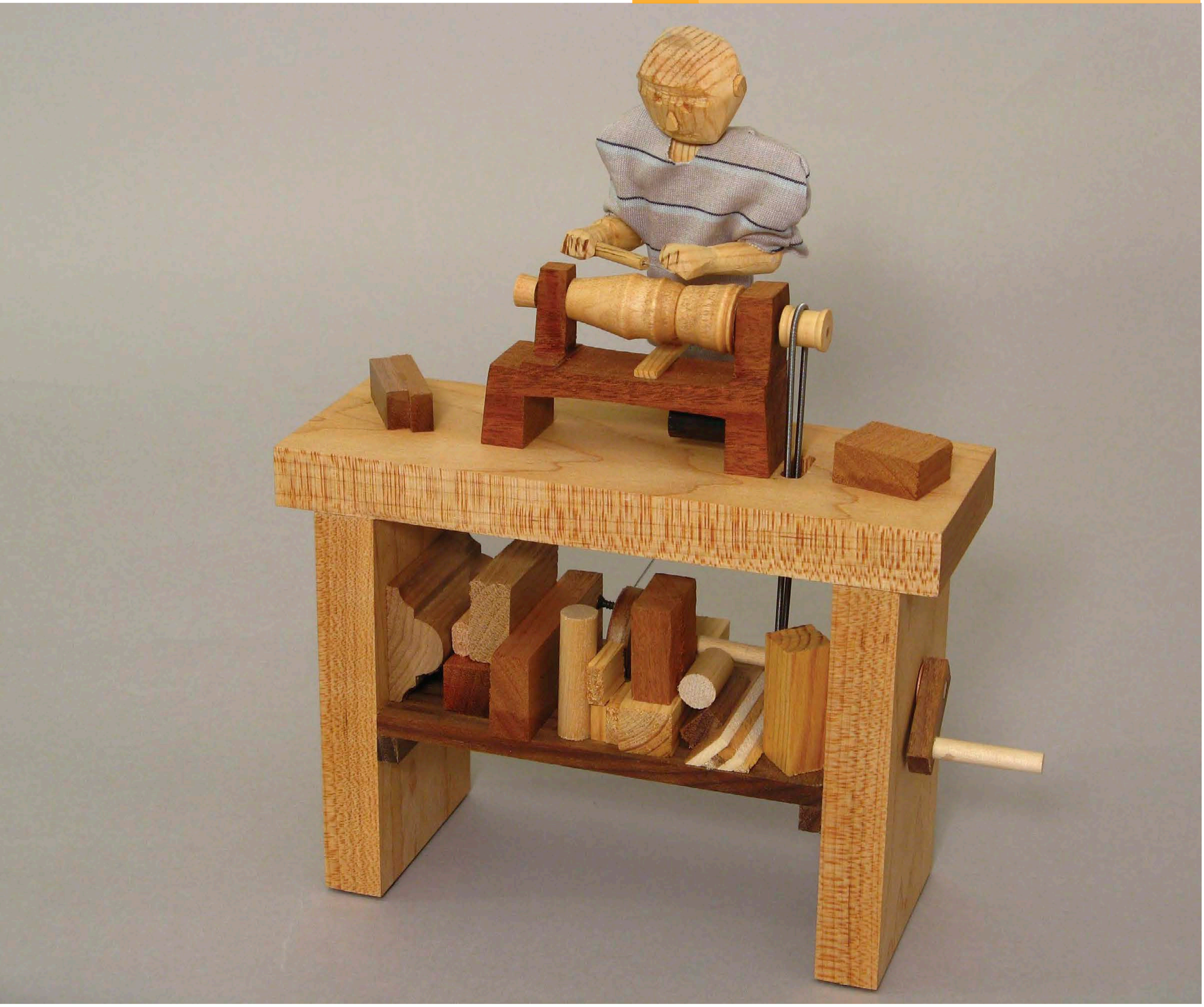


The Wonderful, Whimsical World of Automata

Photos by Charles Mak

Sculpt a miniature woodworker that springs to life at the turn of a crank.

BY CHARLES MAK

In the woodworking world, automata are self-operating mechanisms or objects that follow a set sequence of movements when operated. The word kinetic is also used to describe some moving woodworking projects or sculptures.

Constructing a mechanical build like this may sound daunting, given the need for the coordinated movements of all of its parts. I'll show you a simple kinetic piece here to introduce you to this enjoyable part of woodworking. If you want a break from your usual projects, build this woodturner and let it work at your command – and to the delight of those who encounter it.

The kinetic woodturner comprises four key components: the workbench that houses the mechanical parts; the mechanism; the mini-lathe; and the woodturner. Very much like building a cabinet or table, we'll build each key part and then put them together at the end.

A project like this is typically a bit less constrained by precise dimensions than most other woodworking projects. Pieces of scrap can often play a large role in determining the size of a workpiece. Having said that, to give you some idea of the sizes of the parts in this project, the workbench is 8" long × 3" wide × 5" high. The drive shaft is made from 1/4" diameter dowel that's 4" long. The lathe is 3-1/2" long × 2" high, the torso is 5" high, the left leg is 3" long and the head is about 1" deep × 1-1/4" wide.

I created most of the wooden parts you see here, but you can also find good sources of readymade parts to purchase online. Circular disks can act as pulleys while long dowels are an easy way to create simple shafts. Once you start looking, I'm sure you'll find lots of small manufactured parts from Canadian suppliers that could be incorporated into your next kinetic sculpture or project.

Level of detail

The scope of an automaton project can be adjusted to suit your wants. If you want to build a simple sculpture, one could surely be made in a day. But if you want to spend time carefully shaping the parts and including lots of detail, the same sized project could take a week or more to complete.

The drive belt

Although you could use a simple elastic band, another option is a flexible drive belt. These belts are typically used on model steam engines. Although there may be multiple sources, searching on Amazon and eBay are good places to start. The drive belts are made of spring wire and their ends can be twisted together to form a loop in the dimension you need.

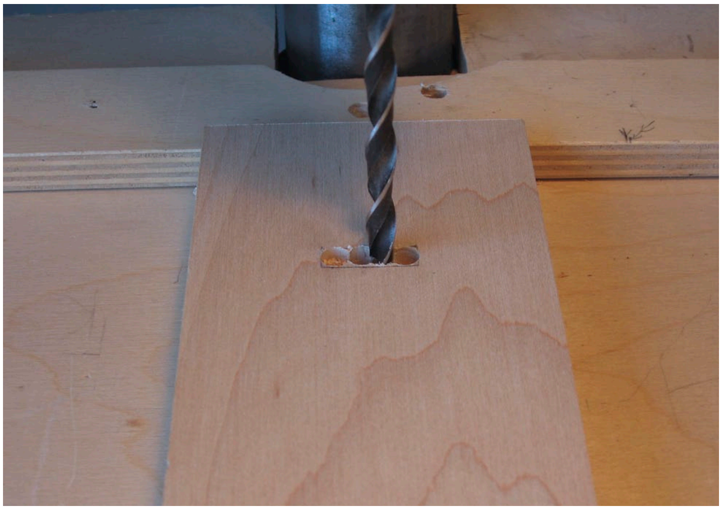
The wooden "dowel hinge"

Some of these parts need to be joined together, but still allow for some movement between them. The left leg-to-body joint is a perfect example. The left leg gets screwed to the rear edge of the workbench, and the body gets attached on top of the left leg with a 3/32" diameter wood dowel that protrudes into both parts and gets glued in place. I'm calling this a "dowel hinge", because it holds the joint together, but also allows a small amount of movement to occur between the left leg and the body.

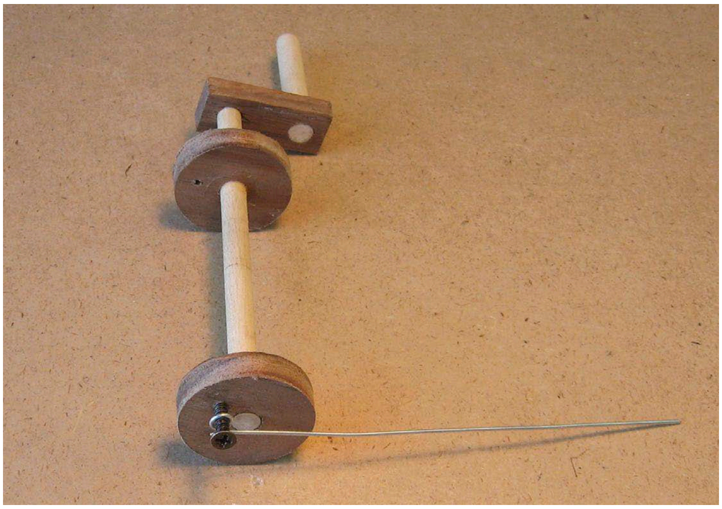
This joint isn't overly strong, but it doesn't need to be. If a larger dowel were used the joint would be stronger, but it wouldn't allow for any movement in this kinetic project. You can play around with this joint; leaving a small gap between the two parts will provide more movement. This can be adjusted by using a different length of dowel, so it bottoms out in both of the holes, while not allowing the parts to come into contact with each other. A larger project may need a larger diameter dowel.

The miniature workbench

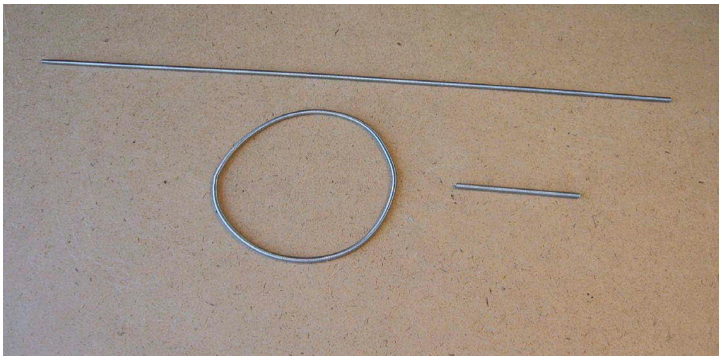
The mini bench consists of the top, two side panels, a shelf and two support cleats. For this build, I opted for very simple joinery. I



A Simple Mortise – A mortise in the workbench top is needed so the drive belt can pass between the lathe and the operating mechanism. Mak chose to remove most of the waste for the mortise with a drill press, then used a chisel to square up the mortise.



The Mechanism – The drive shaft, coupled with an operating handle, allows the user to add movement to this project. A wooden washer sandwiches the drive shaft to the right side of the workbench base and an identical part gets attached on the end of the drive shaft. A small screw gets attached to the second washer offset from the centre, providing movement to the right leg of the woodturner.



The Drive Belt – A drive belt can be purchased and cut to length so it connects the crank mechanism to the lathe. One end of the drive belt can be attached to the other by twisting them together.

chose brad nail-reinforced butt joints that were glued. There's nothing wrong with going all out and fixing the parts that make up the workbench with sliding dovetails or other joints. Having said that, machining joints on smaller workpieces poses a unique challenge. One approach is to do all the machining while the workpieces are still part of a larger blank, then cut the workpieces to final size.

I first cut a slot in the top to allow the drive belt to pass through the workbench top and turn the lathe. Next, I drilled a hole on the right side to allow the drive shaft to extend through the side. The diameter of the hole should allow the drive shaft to rotate smoothly, but with no slop. I glued up the workbench and added a couple of brads to reinforce the butt joint. Some scrap blocks were glued to the top to hide the brads.

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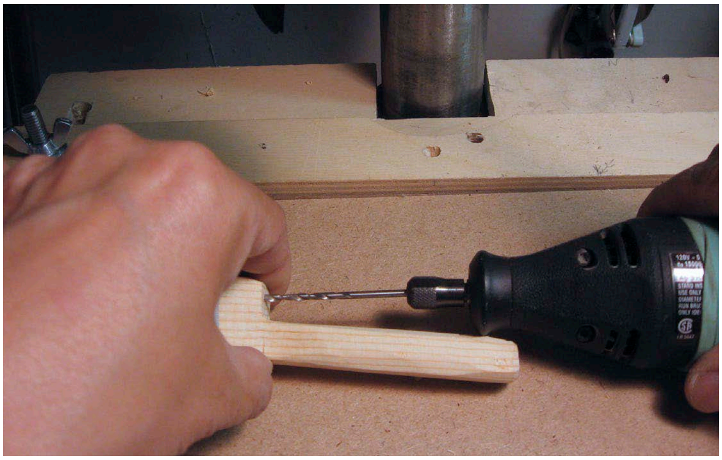
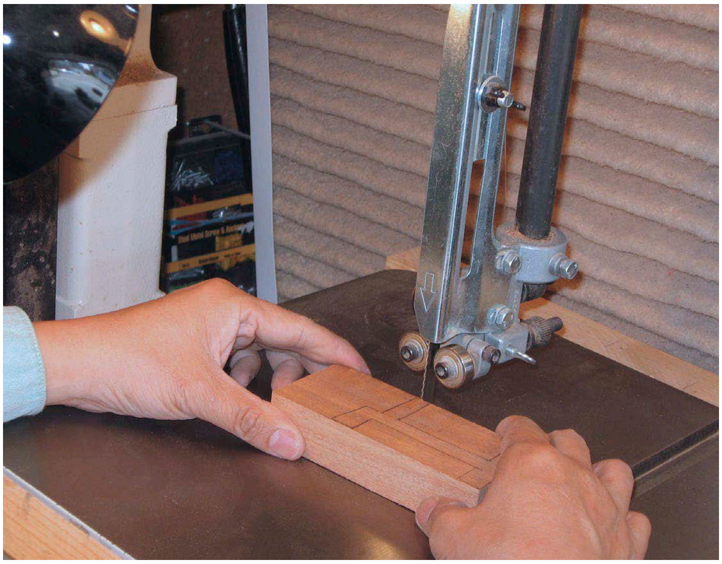
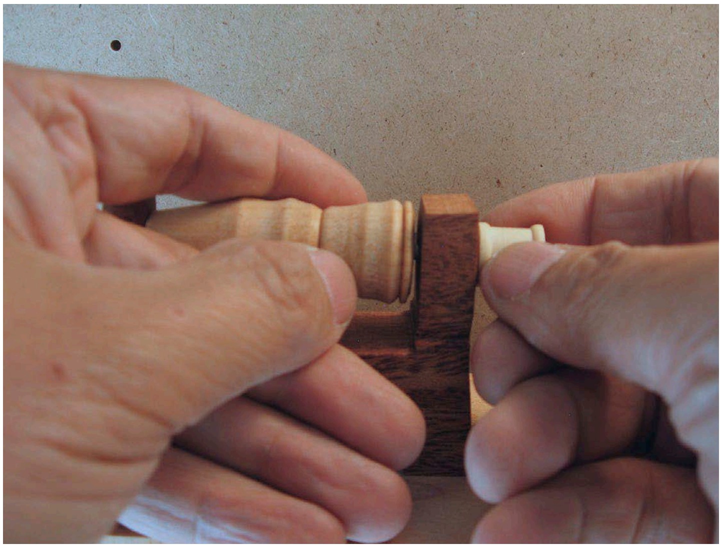


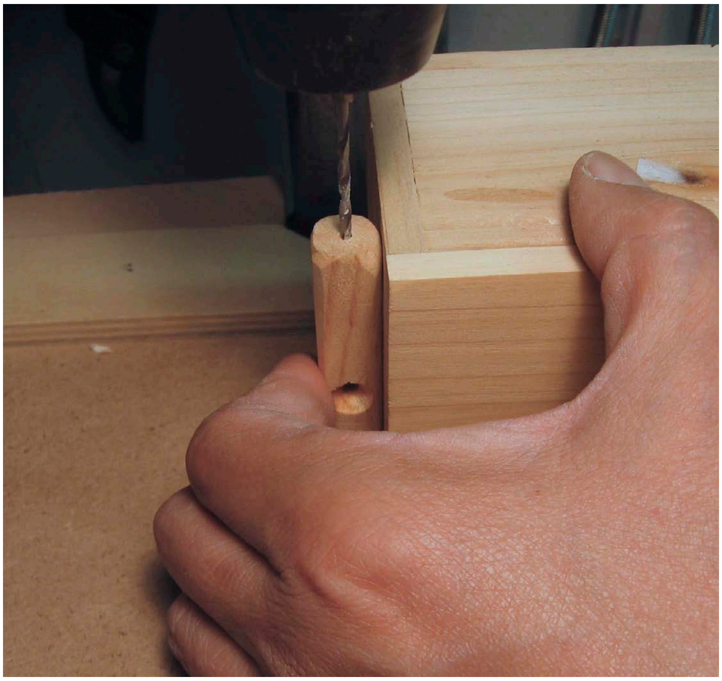
"Dowel Hinge" Holes – Mak uses a drill bit to bore a hole in the torso / right leg combination, so the left leg and torso can fit together.



The Lathe – Mak roughs the lathe out on the bandsaw from a single piece of wood. It's also possible to make the lathe from multiple workpieces, though it makes the task more complex.



Fasten the Turning – Once the turning is complete, and a hole has been bored through it, it can get fastened to the lathe with the pulley and retaining button. The friction should be low enough to allow the assembly to rotate easily.



Drill It Straight – To ensure the hole in the top of the left leg is drilled accurately, Mak presses it against a small box while boring the hole.

The mechanism

I chose a crank slider and pulley as the mechanism. The crank slider is simply a cam with an arm (a wire attached to an offset screw) that pulls and pushes the woodturner's body while the pulley spins the turned object.

First, I made the crank handle and cam shaft by cutting and gluing dowels (one short and one long) to a rectangular piece. I made the cam and the collet out of two 1-1/4" diameter discs with a 1/4" diameter centre hole, then drove a small screw into the cam 1/4" from the centre point. Make sure to bore pilot holes in these small pieces, as they're otherwise very likely to split. After dry-fitting, I put them aside for assembly and gluing later.

To make the drive belt, I cut the wire to 8" long and then joined the ends. You could also just leave the final length uncut for now and take care of that when the entire project comes together. It may be easier to determine just how long it needs to be at that point.

The mini-lathe

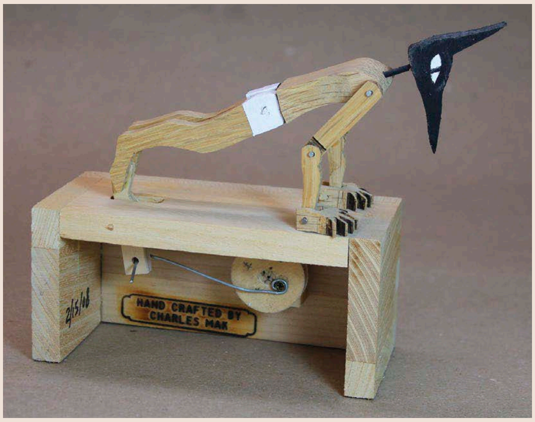
On a lathe, turn a spindle for the turned object. When designing your spindle, remember the scale is quite small, so keep the beads, coves and other details on the smaller side. Trim this spindle to a length of 2" and drill a 1/8" diameter centre hole end-to-end.

I used the bandsaw to cut out most of the mini-lathe from a single block of wood. You could also make the lathe from multiple smaller parts, if you wanted. The initial cuts to create the shape were easy, but I eventually turned to a hand saw to further refine the shape of the lathe. I then glued a wooden tool rest to the lathe bed as well as a dowel painted black to the lathe as the motor.

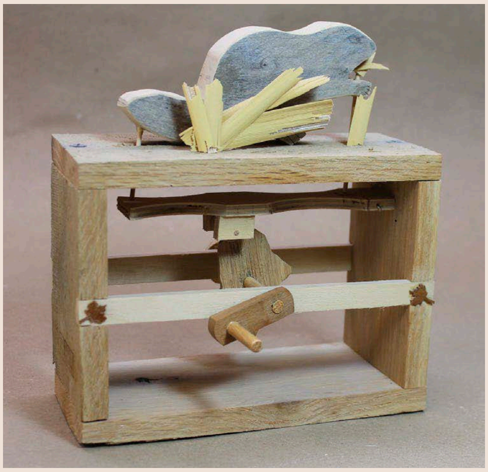
The pulley system was made out of a wood spool, dowel rod and retaining button. Again, these parts can be shop-made, but there's also nothing wrong with purchasing these parts. After drilling two holes in the lathe to accept the pulley system, I assembled the

Lots of Automata Options

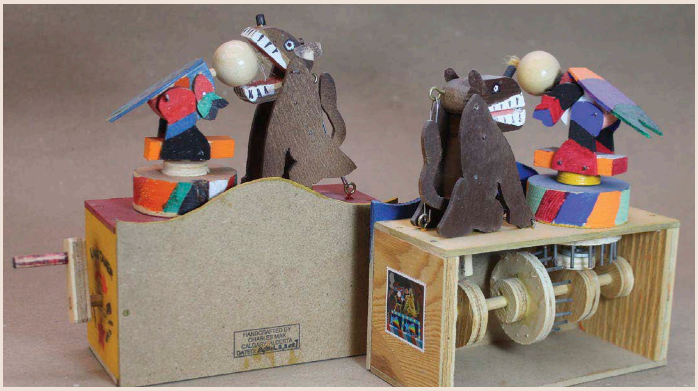
Automata have been around for thousands of years. It's easy to see why this type of object still exists today, as they're not only fascinating to watch, but they're also fun to design and build. When it comes to designing an automaton, there are many approaches to do so. The simple automaton described in this article includes a single drive shaft that moves two other parts when it's cranked, but there are many other ways to design a project of your own. To give you a sense of what else is possible, here are a few other automata Mak has built in the past.



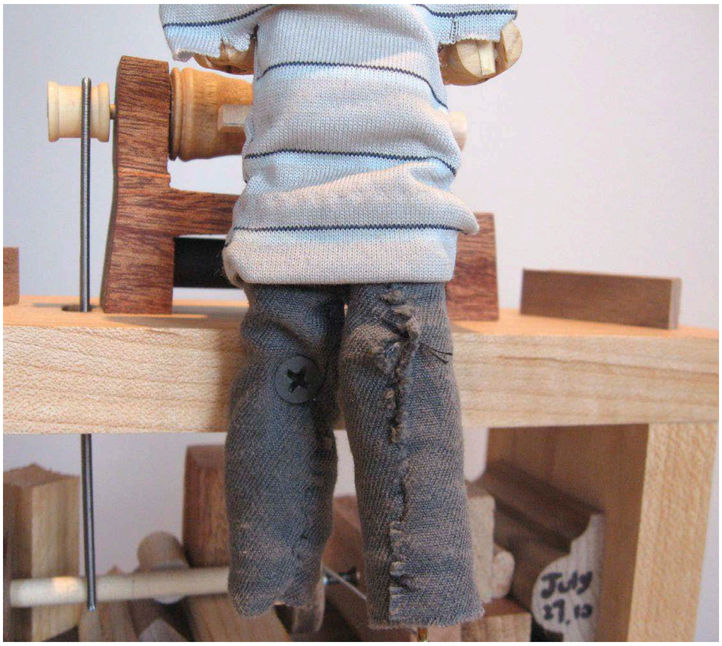
Anubis Pushups - Modelled after British Paul Spooner's design, but executed with a simpler mechanism, this kinetic toy mimics the action of a human doing pushups as the handle is cranked.



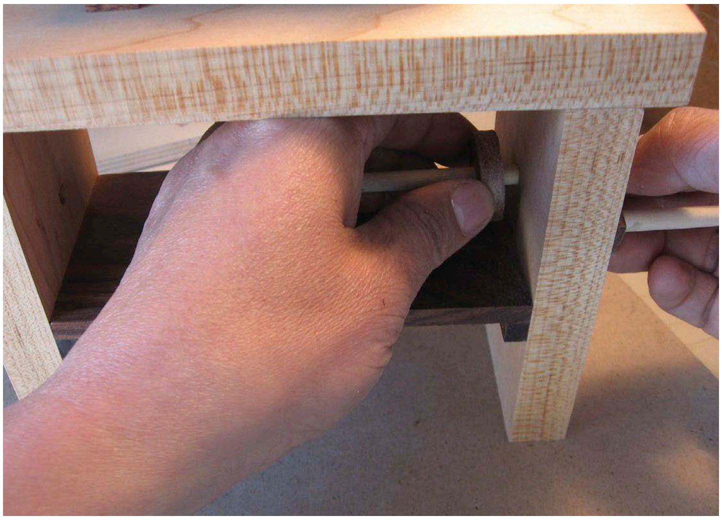
Canadiana Automaton - This mechanical sculpture of Mak's own design features a beaver, a national symbol of Canada, and a cam in the form of an outline map of Canada. When the handle is turned, it shows the beaver gnawing and chewing on a plant, while slapping its tail.



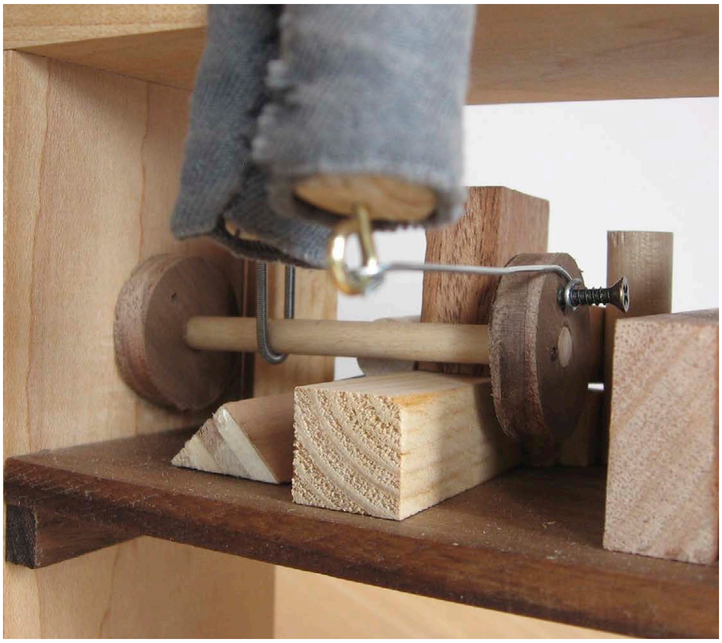
Lion Tamer - This is a much more complex automaton, based on Ron Fuller's design. Turning the handle causes the lion to open its mouth, trying to bite off the tamer's head, but the tamer quickly turns around and escapes at every turn.



Secure a Leg – Although it looks painful, a screw driven through the left leg keeps it fixed to the rear edge of the workbench top. The torso is otherwise free to move slightly when the crank is rotated.



Wooden Washer – The wooden washer on the inner surface of the workbench side keeps the mechanism assembly in place while it's being rotated. It gets glued into place.



Add the Wire – A piece of wire is attached between the screw eye in the turner's right foot and the small offset screw in the mechanism. This connection provides some movement to the woodturner when the crank is rotated.

spindle on the lathe with the pulley. The lathe was glued in position on the workbench top so the pulley aligns with the centre of the slot that was cut into the top.

The woodturner

The woodturner figure is the last component to make, and consists of the head, the body with the rigid left leg, the hinged two-part right leg and the arms, all to be connected to each other by 3/32" diameter pieces of dowel to form each dowel hinge.

After cutting out the head as well as the body / right leg assembly on the bandsaw, I drilled all the holes on the part and glued the head to the torso with a dowel hinge. At this point I attached a screw eye to the end of the right leg. This screw eye would eventually be attached to the rotating mechanism with wire. Next, the left leg was cut and the dowel hinge holes were drilled before I countersunk the 1/8" diameter screw hole so the leg could be attached to the rear edge of the workbench.

I cut out the arms, cut the simple elbow joints with a hand saw and drilled holes at the elbows. A skew chisel was made out of a small piece of metal and a dowel rod. Some of these small accessories can be made from materials that can commonly be found around the home. The elbow joints were then glued and left to dry before joining them to the torso. Next, the torso was mounted on the left leg, all with dowel rods without glue. The lack of glue allows the torso to rotate slightly when the crank is being turned.

Instead of painting the figure, my daughter sewed some fabric to dress up the woodturner and I glued the skew handle to the right hand. While doing all this, I kept in mind where the hands of the figure should finish so it would look like it was actually working on a lathe.

The final assembly

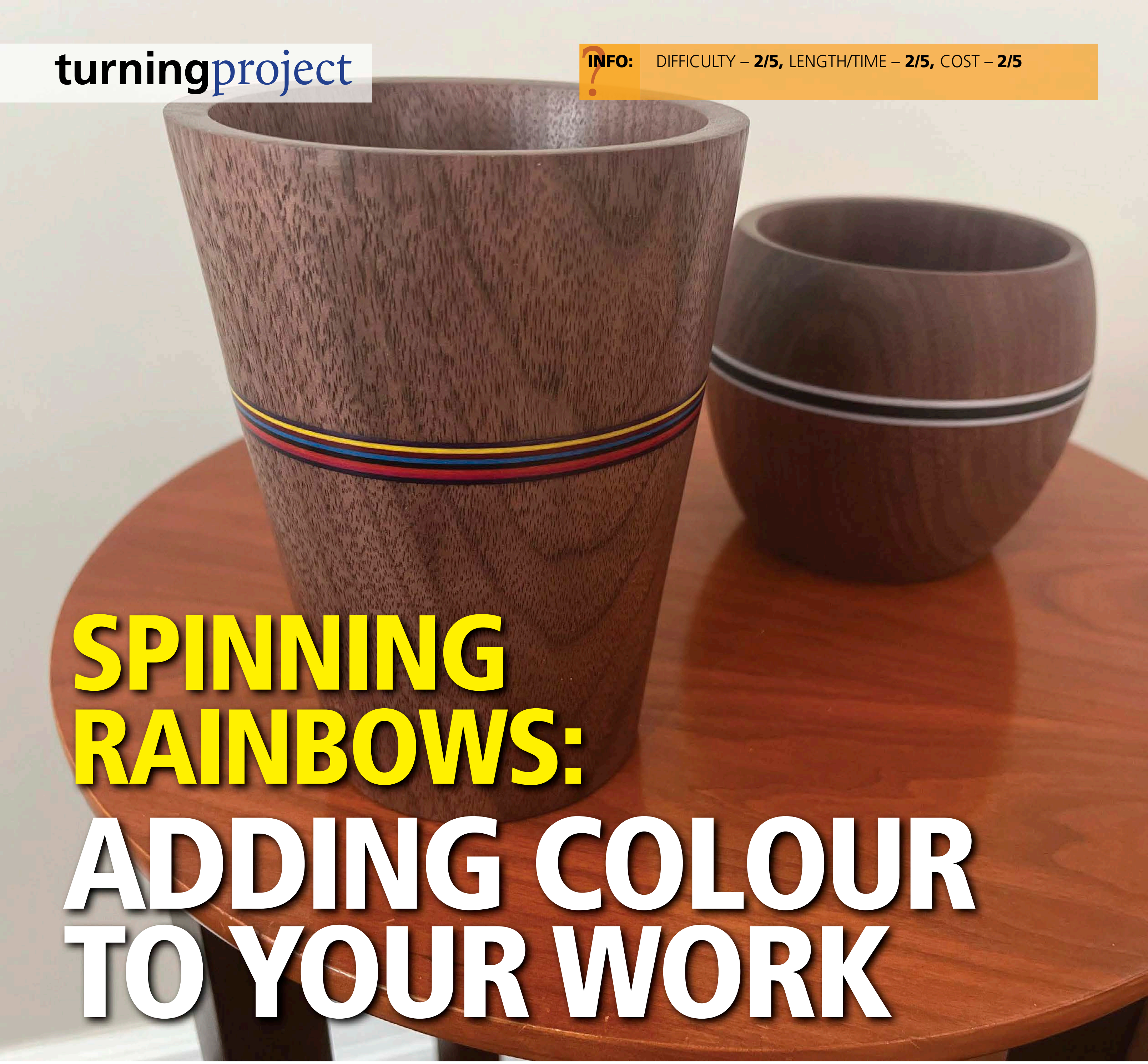
I screwed the woodturner's left leg to the back edge of the bench top. After feeding the drive belt to the pulley, I glued the crank slider in place and glued some scrap blocks to the shelf for decoration. Lastly, I tied a wire connecting the screw on the cam to the screw eye on the end of the turner's right leg.

Sanding the surfaces smooth, as well as adding a small amount of paste wax on some of the rotating surfaces help the parts move freely.

After testing all the movements of the piece, I glued only the joints in the shoulders, leaving the elbows and the torso free to turn. You're done – crank it, and turn some heads!

CHARLES MAK
thecanadianwoodworker@gmail.com

INFO: DIFFICULTY – **2/5,** LENGTH/TIME – **2/5,** COST – **2/5**



SPINNING RAINBOWS: ADDING COLOUR TO YOUR WORK

The only thing more enjoyable than watching feathery shavings fly off your turning project is when some of them are brightly coloured.

Photos by Rick Campbell

BY RICK CAMPBELL

There's nothing new about incorporating contrasting wood in lathe turnings to create eye-catching accents, but using stacks of coloured card stock to achieve these visual enhancements is an intriguing twist that deserves a closer look. Card stock, rather than solid wood, provides an opportunity for a wider variety of vibrant colour options and the materials are much less costly than expensive exotic wood species.

This idea may sound interesting, but you could be concerned that pulpy card stock will never stand up to the rigors of turning. That's true, unless you know the secret ingredient that changes the game. Prior to laminating the card stock layers within the blank, the material is saturated with a generous coat of slow-cure, two-part epoxy resin. Once the epoxy fully cures, the card stock becomes extremely resilient and can be milled just like wood.

Preparing the blank

For this simple vase design, I selected a big chunk of walnut that I had been hoarding for a rainy day. By the time I was done squaring up the sides and ends of the material, my blank measured 5" square and 6-1/2" long, but you can make your turning blank any size you want.

With the completed turning blank in hand, use a pencil or chalk to mark a large triangle on one face of the block. These reference lines will help you reorient the grain pattern after completing the next step.

Head over to the table saw to slice the material in two, where you want the contrasting card stock accents to reside. For my turning, this was about 2" from the top of the blank. My table saw doesn't have the capacity to cut through a 5" thick chunk of wood in one pass, so it was necessary to complete this procedure with two cuts. I started by raising my saw blade to the maximum cutting depth and setting a stop block on my mitre fence to position the workpiece. After completing the first pass, I flipped the block over to make another run that cut the remaining way through the material.

Preparing the card stock

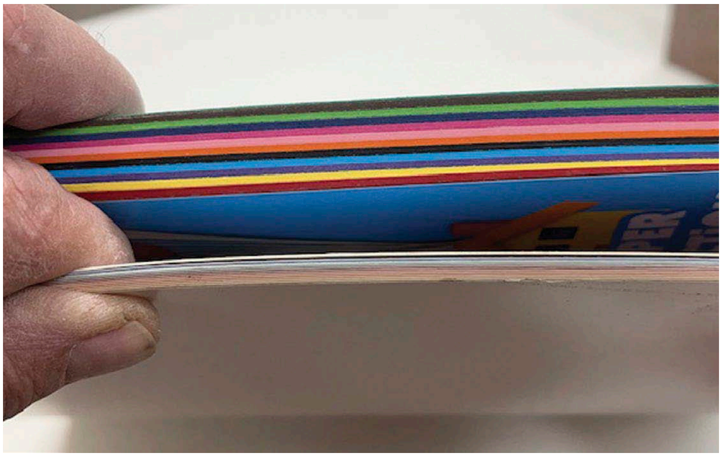
The next step is to prepare the squares of card stock that will create the colourful accents. For this, I purchased a package of multi-coloured card stock for just a couple of bucks from a local dollar store. Just be certain you select a variety that has the colour running all the way through the sheets. Some card stock has a white core with a very thin layer of colour applied to the outside faces. Material with a white core won't work for this application because all that will be visible after completing the turning is the neutral centre layer.

The card stock is very thin, so you will obviously need quite a few sheets for each colour band. My turning included four sheets for each layer, but you should decide on a configuration that looks best to you. It's easy to play around with different band thicknesses and colour combinations by stacking up dry layers of card stock squares.

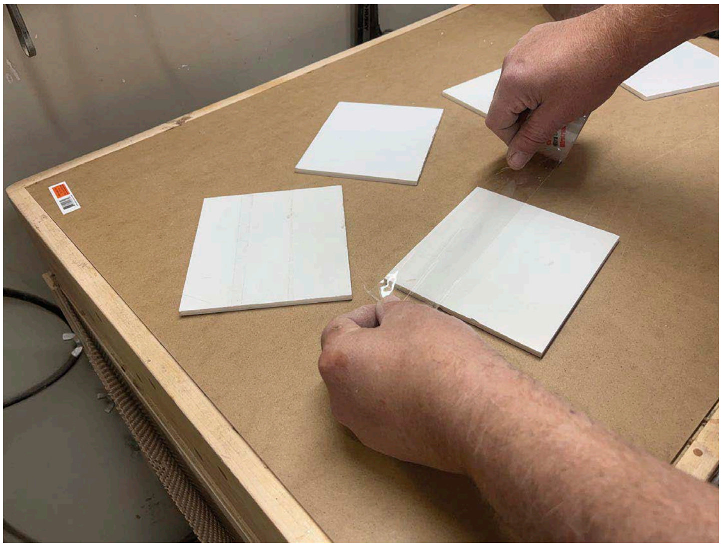
A mechanical paper cutter would make quick work of cutting the card stock to size, but I don't have access to one, so a straight edge and a utility knife were pressed into service to get the job done. To correspond with the dimensions of my blank, I cut all the card stock into uniform 5" squares. I avoided the tedious process of measuring and marking each piece by laying out a 5" square on my cutting surface to serve as a template for the straight edge and utility knife.

Preparing the form

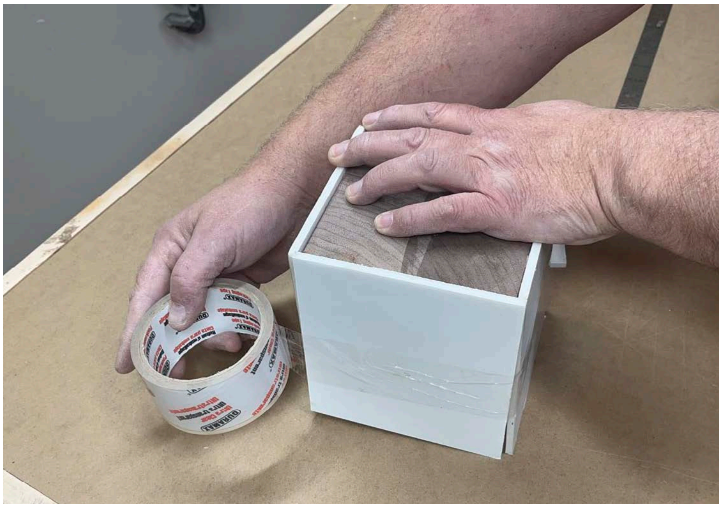
Next, I turned my attention to the form that will contain the turning blank and resin-saturated card stock while it cures. The main purpose of the form is to keep everything aligned while assembling and clamping the two wooden halves and the multiple layers of paper, as well as keep epoxy from squeezing onto your workbench. For this, you'll need to head back to the dollar store to pick up a sheet of foam core board. These sheets are about 1/4" thick and



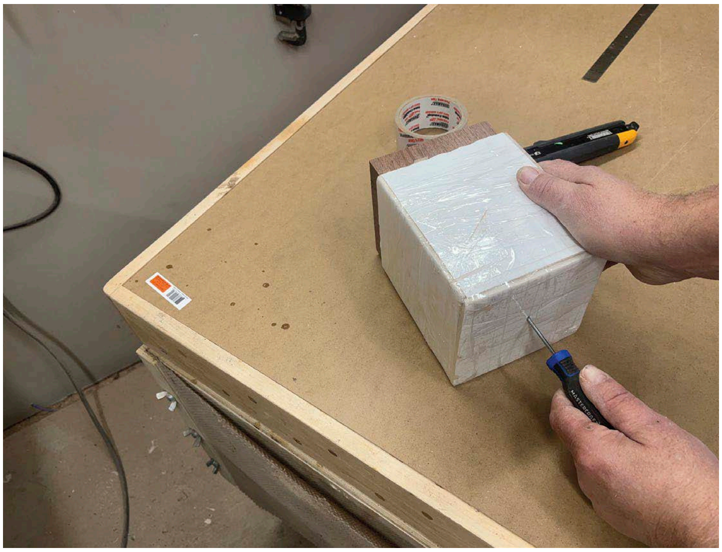
Check the Edges – Some card stock (bottom of stacked paper) may have a white core, which isn't what you want. Check the edges of the pad for consistent colour throughout the entire thickness of the paper before you make a purchase.



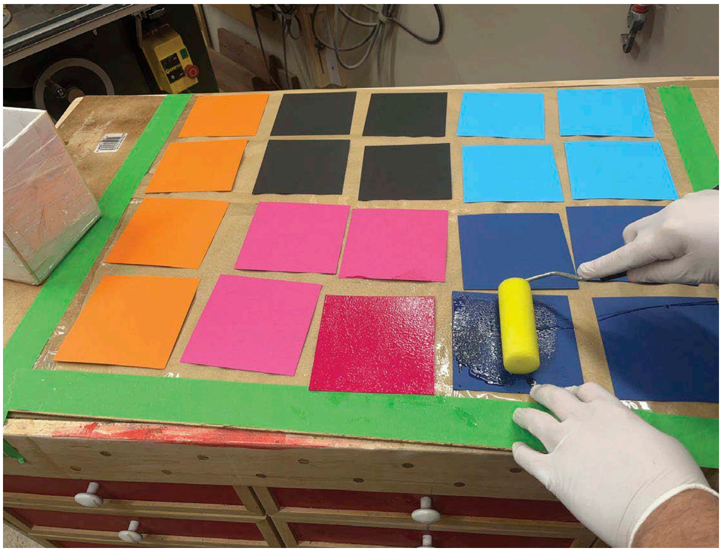
Cut and Tape – Cut pieces of foam core board to the outer size of the blank you're gluing up. The sizes should fit around the blank, with virtually no gaps between the edges, where lots of epoxy could squeeze out and make a mess.



Wrap It Up – Packing tape does a good job at keeping the pieces of foam core board secure around the blank. Don't wrap it so tightly that you can't get the wood blank out of the foam core form.



Remove the Blank – If your blank doesn't slide out of the form, a small hole in the bottom of the form, along with a small tool to press the blank out, should work.



Roll It On – With some craft paper under the card stock pieces, roll epoxy onto both sides of each piece of card stock. Applying epoxy to both faces might be messy, but it will ensure good coverage of epoxy and solid joints for turning.

have a soft foam core with paper bonded to the outside faces.

Start by using your utility knife and straight edge to cut four sides that will fit snugly around the outside of your blank. Make sure you leave enough room for the thickness of the card stock accent layers when cutting the side panels to length. Now cut out the bottom of your container to fit the end of the blank plus the thickness of the foam core side walls. Before assembling the form, it's a good idea to completely cover the inside faces of the panels with strips of packing tape. The tape will help prevent the foam core from bonding to the blank when residual epoxy resin inevitably drips down the sides.

To assemble the form, arrange the side panels around the outside of the blank and secure them in place with more packing tape. Keep wrapping tape around the perimeter of the form until you're certain the corner seams are fully sealed. Now you can secure the bottom panel in place using the same process.

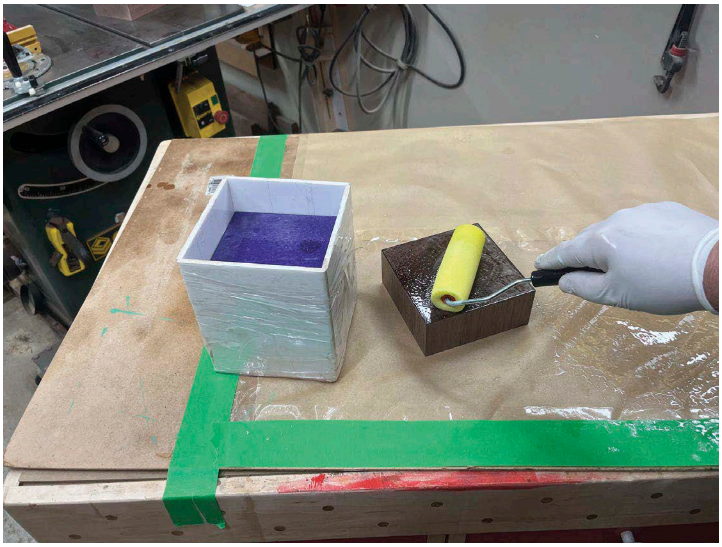
With all this work done, it's now time to remove the blank from the form to prepare for the application of the epoxy resin, but in my case, I immediately realized I had a small problem. The container's snug fit made it difficult to remove the blank without damaging the delicate foam core sides. After a bit of thought, my solution was to stick a pointed awl through the bottom panel to push the blank out of the form. This technique worked like a charm, then I simply sealed up the small hole with another strip of packing tape.

Making a mess

Now for the messy part of this project: saturating the card stock sheets with epoxy resin. I prepared for this process by taping layers of craft paper to my work surface to protect the top. Lay out your card stock squares on the work surface, then follow the product directions to mix up a batch of epoxy resin in a disposable plastic paint tray. The product I used for my turning was a standard two-part casting epoxy with a 30-minute working time. One of those dollar store disposable foam roller brushes does a great job of applying the epoxy to the card stock. (At this stage you must be thinking that I practically live at the dollar store.) Disposable plastic gloves are also a good idea to protect your hands from the sticky goop.

Another option is to use a slower-setting epoxy and after applying a coat to all of the layers of paper, as well as the wood, wait about 30 minutes or so before reapplying a second layer of epoxy to the parts. The first layer will be allowed to soak deeper into the materials, while the second layer will further coat any areas where the epoxy has soaked in. This is especially important when dealing with end grain or thicker paper.

When you've prepped your work surface, roll a coat of epoxy onto the top face of the lower section of the wood blank and slide it into the form. When you do this, make sure the chalk reference lines are oriented on the marked side of the container. Next, roll a liberal coat of resin on both sides of the card stock and place the layers into the container in sequence. It is essential that you achieve full coverage, so check carefully for areas you may have missed. Any dry spots will be obvious because the colours will be less brilliant. Now, spread epoxy on the



Don't Skimp – End grain sucks in the epoxy, so make sure to coat it with ample epoxy before placing the parts in the form. Waiting a short time between a couple of coats will ensure enough epoxy remains at the joint line.

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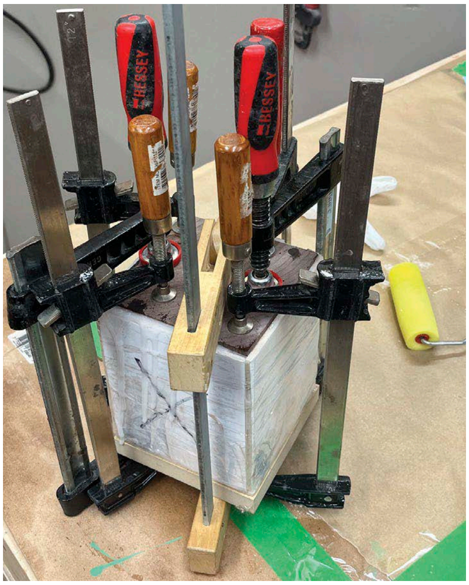
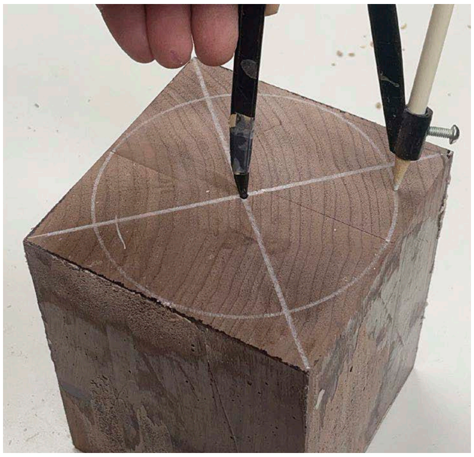


Just Right – Too much pressure will cause too much of the epoxy to squeeze out of the joint, creating a weak joint. Too little pressure will not bring the parts together properly.

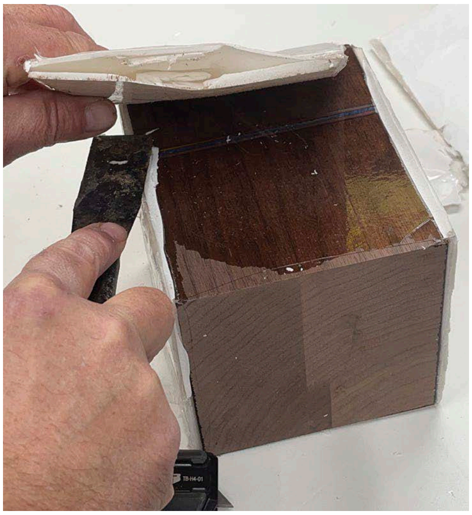
bottom face of the remaining piece of the wood blank and add it to the assembly. When you do this, remember to orient the chalked side of the blank with the marked side of the container to properly align the grain.

Add a bunch of clamps to uniformly compress all the layers of the lamination while the resin sets. A piece of scrap wood on the bottom of the form is a good idea to prevent the clamp jaws from biting into the soft foam core material. I set my blank aside for four days to let the resin fully cure, but the requirements may be different for the product you're using, so check the manufacturer's directions.

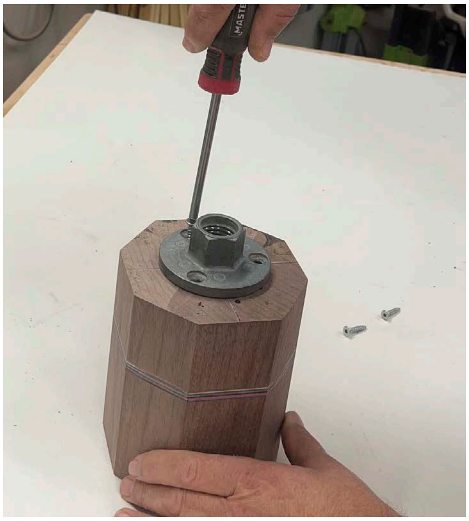
Earlier, you'll recall I marked one side of my turning blank with a chalk triangle to facilitate realigning the grain pattern when the blank is reassembled. You may have



Layout Lines – Find the centre of the blank, then use a compass to lay out a circle on the end grain of the blank to guide you when removing the waste from the blank.



Extract the Workpiece – Once fully cured, cut and scrape the form off the blank.



Attach a Face Plate – With much of the waste removed, attach a small face plate to the blank. The screw holes will eventually be removed while hollowing out the interior of the turning.

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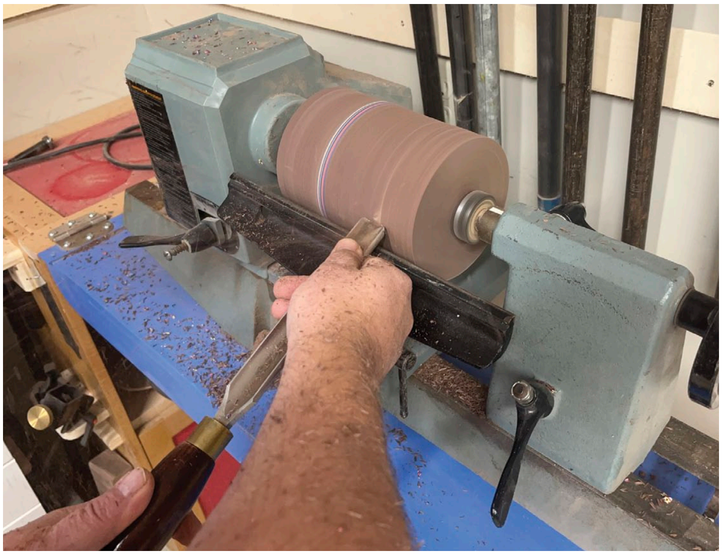
Time to Turn – With the majority of the waste removed, and the blank positioned properly on the lathe, it's time to turn.



Rough It Out – First, Campbell rough turns the blank with a roughing gouge so it's round and even. He does this on a slightly slower speed.

already realized that once the lower half of the blank resides in the form you will no longer be able to see these references, making it difficult to correctly orient the grain when inserting the top piece. A simple solution here is to mark the exterior of the form on one side to correspond with the marked side of the blank.

The waiting game

After waiting patiently for the resin to cure, it was time to peel off the form to get my first glimpse of those beautiful coloured bands. To remove the form walls, I sliced the tape along the seams with a utility knife, then slipped a putty knife between the foam core panels and the wood blank to pry away the sides. The packing tape did its job and the foam core board released cleanly with minimal effort.

Time for turning

Now it was time to prepare the blank for the lathe. I started by scribing diagonal lines on both ends of the blank, from corner to corner, to locate the centre point on both ends. Next, I used an awl to make a divot where the lines intersect. Using a compass, I scribed a circle on the ends to mark the maximum diameter of the turning.

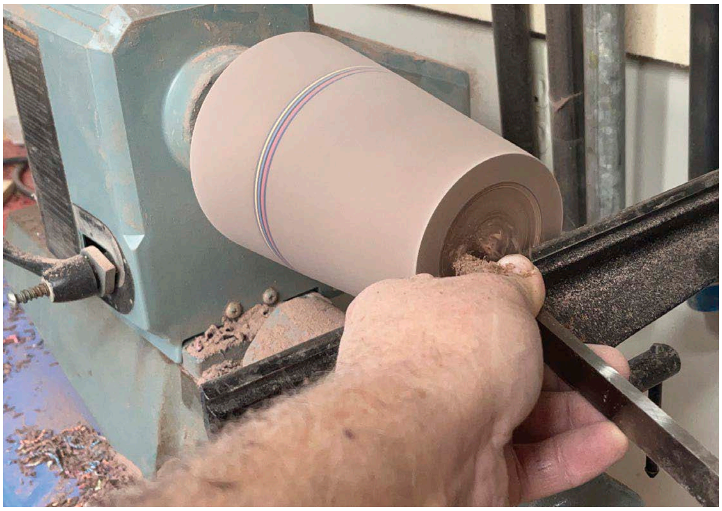
I always cut the waste off the corners of my turning blanks at the table saw to give me a bit of a head start at the lathe. To do this, I tilted my saw blade to 45° and set the fence to make the cuts. I was careful to position the fence so the blade wouldn't cut into the circle I scribed on the ends.

With this done, I mounted a small 3" diameter face plate on the end of the blank that will eventually become the top of my vessel. The screw holes used to mount the face plate won't be an issue, because this area of the turning will eventually be hollowed out.

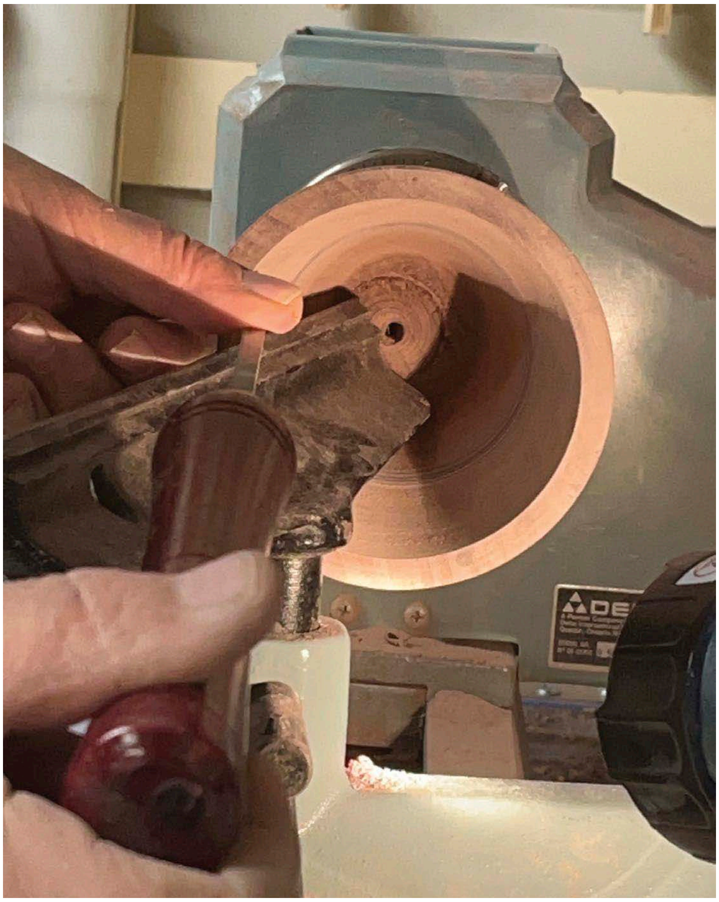
First, the exterior

I threaded the face plate onto the lathe and pushed the tail stock into position on the end for added support. After positioning the tool rest, I set the lathe spinning at around 750 rpm to begin rounding the blank with a roughing gouge. Once the blank was consistently round along the entire length, I turned up the speed

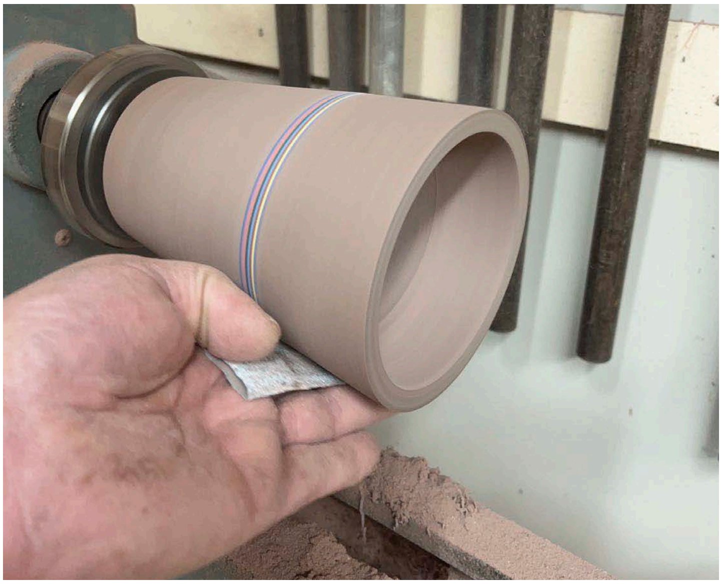
Taper It – Once it's round, Campbell uses a roughing gouge and skew to taper the turning so it's narrower at the bottom.



Form a Recess – After moving the tool rest to the end of the blank, Campbell turns a recess in the end of the blank so he can re-attach the blank to the lathe with a scroll chuck.



Get Inside – Extending the tool rest into the cavity of the turning allows Campbell to properly remove material from the interior of the blank.



An Easy Sand – Sanding the turning while it's on the lathe makes the process easier.

to about 1200 rpm and used a combination of the roughing gouge and skew to taper the turning toward the bottom. When this process was complete, the diameter of the blank at the top end was 4-3/4", with a taper towards the bottom reaching 3-1/4".

For the next stage, I moved the tail stock out of the way and positioned the tool rest on the end of the blank to make a 3/16" deep by 2 1/4" diameter recess to receive the jaws of my scroll chuck. I did most of this work with my parting tool.

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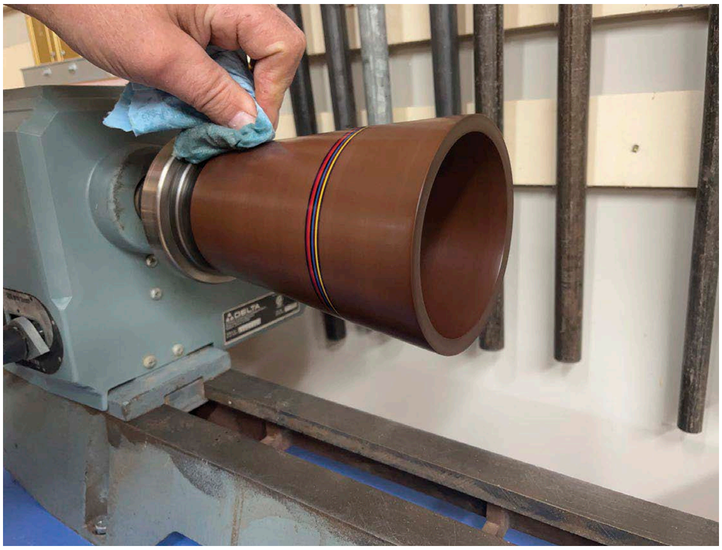

Finish It Up – Once a coat of finish is applied, you can slow the lathe down and buff the surface to your desired sheen.

Then, the interior

When I was satisfied with the exterior shape of the turning, it was time to remove the material from the inside of the turning. To save some time at the lathe, I started by boring a 1" diameter hole in the centre of the turning with my drill press. As I was holding the turning with my hand, I had to be a bit more careful. A larger bit, or a plunge rate that was too fast, could easily grab the turning and injure my hand. I was careful to make sure the hole ended about 1" short of the bottom. You could also do this initial hollowing operation on the lathe.

Next, I mounted the bottom of my blank back on the lathe using the scroll chuck. After verifying the jaws were firmly seated, I turned on the lathe to about 1200 rpm and began shaping the interior of the turning using a combination of the finger gouge, parting tool, skew and hooked scraper. As I got deeper into the opening, I turned the end of my tool rest so it was positioned inside the cavity for added support. While I worked, I took the precaution of making very light cuts to prevent the turning from sheering off the chuck.

I continued working away at the inside until the walls were a uniform 1/4" thick. I finished up the interior by forming a slight cup-shaped profile on the bottom.

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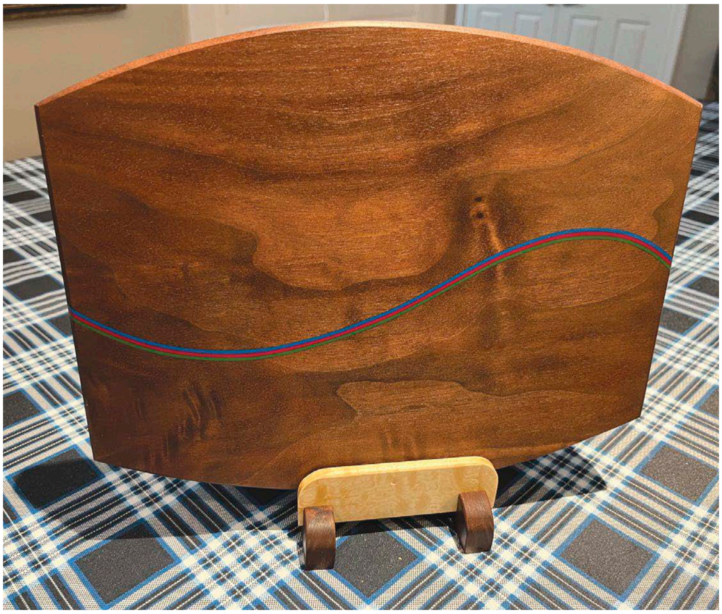

Get Creative – Campbell liked the effect of the coloured bands so much he brought the same technique to a cutting board. There are countless ways this technique can be used in woodworking and furniture making.

The finish line

Now it was time to move the tool rest aside and break out the sandpaper. I reduced the lathe speed to about 300 rpm and progressively worked my way through all the grits from 100 down to 2000, sanding both the interior and exterior of the turning. My father always taught me to burnish the surfaces with a handful of shavings as the last step of the turning process. I don't know if it really makes a big difference but I still do it every time.

After turning off the lathe, I applied a couple of coats of boiled linseed oil to all the surfaces with a cotton rag. This part of the process was very satisfying because the oil brought out the rich grain of the walnut and brilliant colours of the accent rings.

Final thoughts

After completing my first turning using coloured card stock, I immediately wanted to try the technique again. My next turning involved just black and white card stock. This technique resulted in a midnight black band that resembled the look of ebony, contrasted against pure white ribbons on either side. Totally satisfied with my first experiments using card stock to add accents to turnings, I was excited to explore all the possibilities of this intriguing technique. I guess it's back to the dollar store to purchase more supplies.

RICK CAMPBELL
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Barn board

There are few things in the woodworking and DIY world better than the charm and warmth of a refinished barn board project.

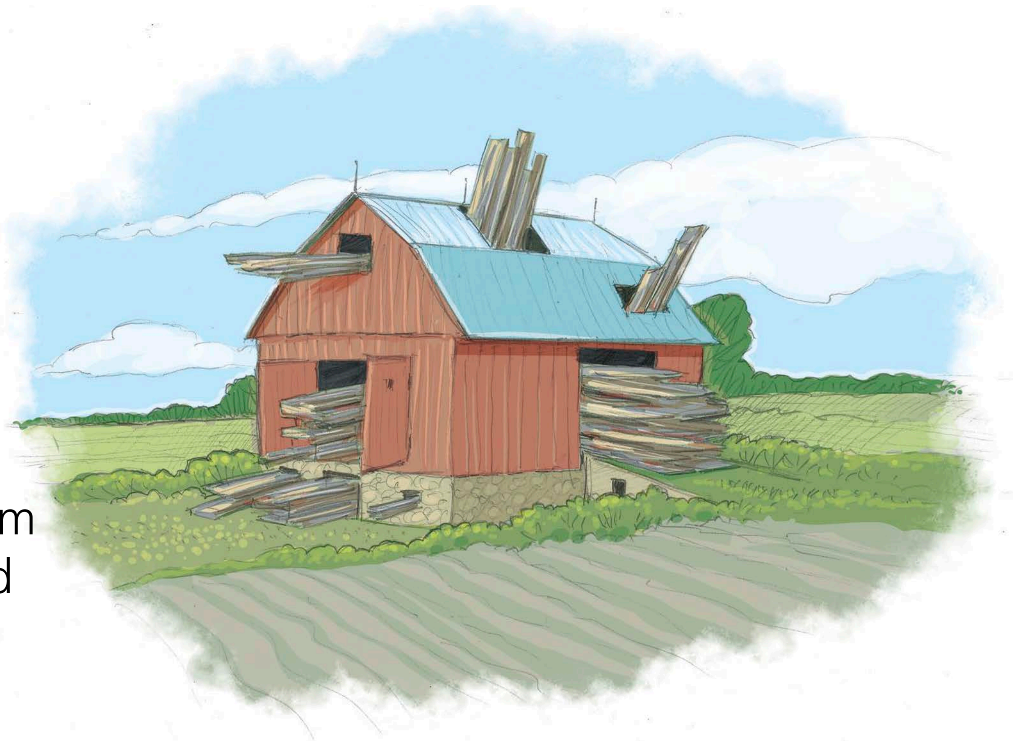

Illustration by Mike Del Rizzo

BY JAMES JACKSON

Whether it's a rustic entryway bench or floating shelves made of century-old beams, the appeal of barn board has had some real staying power over the decades.

My in-laws bought their house more than 35 years ago in a quiet farming community and requested the builder install a custom wooden mantle over the fireplace made of a beam from the old barn that once stood nearby. To this day, it's a beautiful piece that still has stockings nailed into it every Christmas as if it were from a Charles Dickens novel.

And when my parents built their first home decades ago, my dad covered some of the walls in the basement with barn board - then confided to us years later that some of the boards were actually attached upside down, since the brown rust marks from the nails ran upward toward the ceiling instead of down to the floor.

And today you can hardly walk into a bar, hamburger joint, coffee shop or realtor's office without seeing the creative flair of reclaimed wooden tables, countertops or accent walls.

I have to ask though - is the barn board boom in danger of waning? Or does the rustic look transcend time?

I'm asking mostly for selfish reasons, after spending countless hours salvaging, sorting, de-nailing and stacking hundreds (perhaps even thousands) of board feet of barn board over the past few years. Together with my dad, we've stacked, unstacked and restacked these boards onto skids and placed them under cover inside the hay barn.

All of this hard work hinges on the continued appeal of barn boards for building projects, and we've got a wide variety to choose from. There are boards well over 12' long, short boards, fat boards and skinny boards. We've got two-inch thick threshing floors along with barn beams, rafters and support struts. There's not quite enough to build an entirely new barn, but probably pretty close.

In fact, there's so much that we're now running out of space to store it all. I've even floated the idea of actually selling some (a thought I never could have imagined just a few years ago). And this stuff is valuable. A quick search online reveals some salvage companies are selling reclaimed wood for prices ranging from just a couple dollars per board foot for unfinished material straight from the scrap heap, up to $10 for milled and de-nailed stock that's ready to go for whatever project you need it for.

The barns, drive sheds and old factories that are the most common sources of this material are becoming rarer by the year as they disappear due to age, wear and tear, and the seemingly unstoppable progression of our towns and cities onto prime farmland.

I love working with the stuff, aside from the occasional stray rusted nail that can chip a blade in your jointer and planer, but it's also one of the more difficult materials to build with. The wood tends to warp and twist as it ages, and a lot of the outer barn cladding is less than an inch thick, meaning if you were to try and flatten the twists you'd be left with very little (if any) wood to work with.

A lot of it is rotted and cracked, too, rendering it unusable for some projects.

I used to scrounge and save every scrap I could find, thinking to myself, "That could be a sign, bottle opener or candle holder," but I've evolved into a more discerning woodworker in recent years. In other words, I've come around to the idea that some of it just isn't good for anything. A lot of it is downright garbage.

So, while my dad was away on a long road trip this past summer, I took the opportunity to become ruthless in my barn board sorting and I picked out the worst of the worst and relegated these boards to the burn barrel. The resulting fire was hot, as the dry wood burned quickly.

I have to admit, though, that while I tossed the pieces into the barrel, I couldn't help but save a few and carry them back up to the barn for safe keeping. Old habits die hard.

JAMES JACKSON
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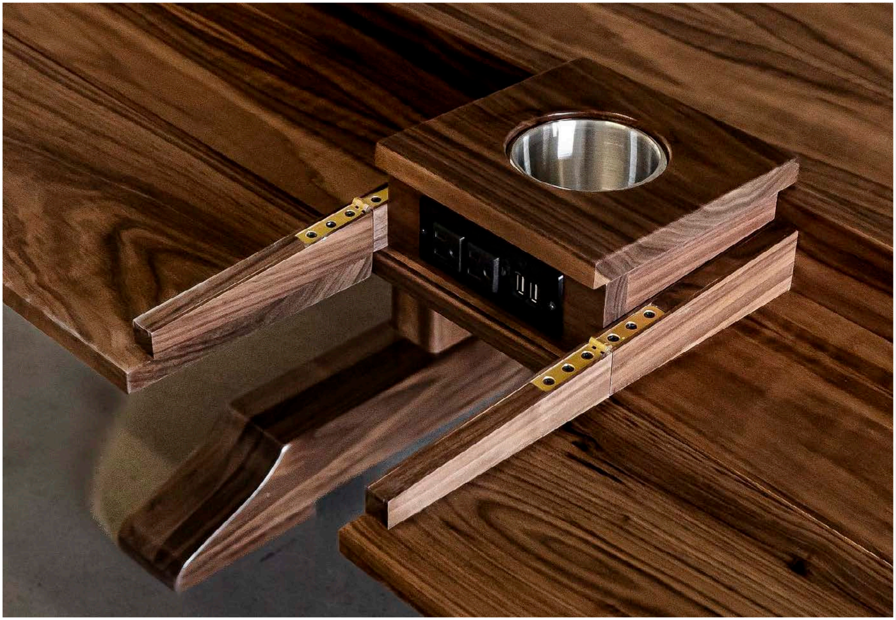

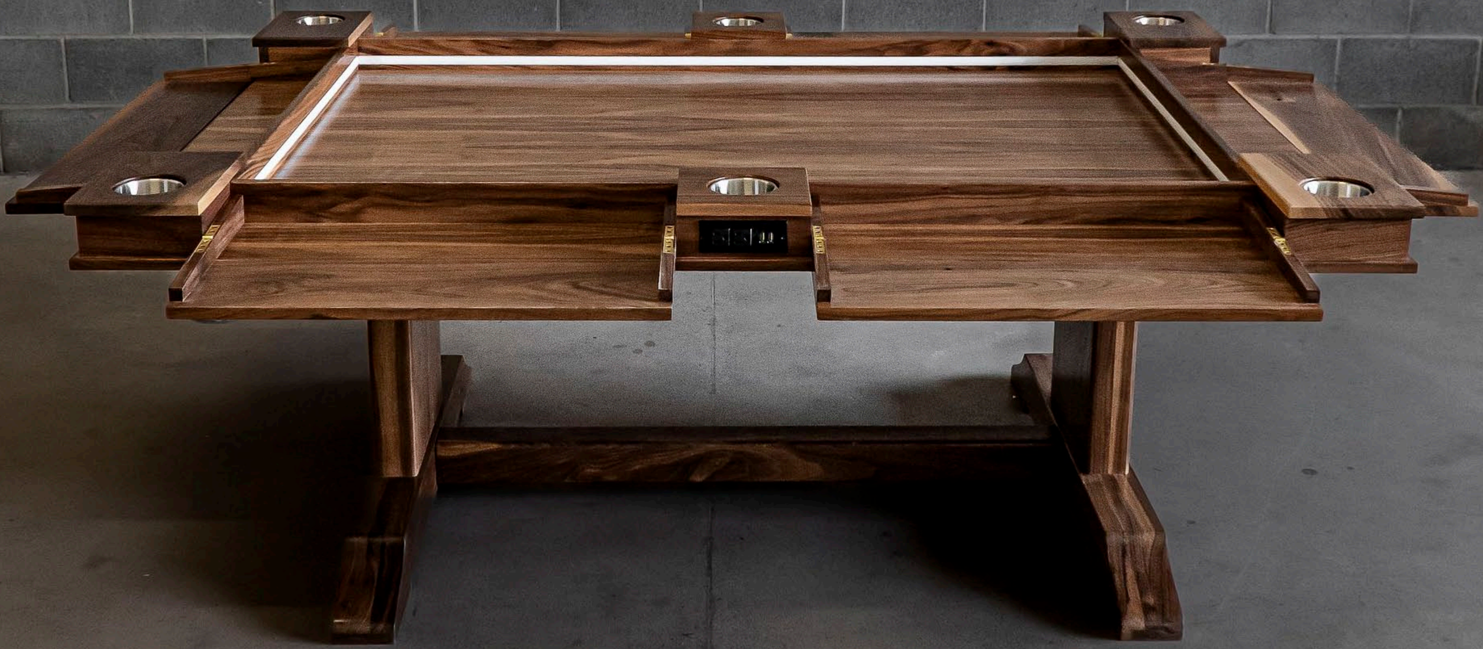

Harley Griffin

Flip-Out Game Table

The most difficult part of many of Griffin's game tables are that they have to be engineered to work in many different climates, as they get shipped all over North America. He also has to build them in a way so the client can make any necessary adjustments to the table once it's at their home. Griffin's favourite part of this build is the flip-out cubbies.

Turn to page 14 for more quotes.*